

THE
NEW YORK
DENTAL RECORDER,

DEVOTED TO THE THEORY AND PRACTICE OF

SURGICAL, MEDICAL AND MECHANICAL DENTISTRY.

EDITED BY

C. C. ALLEN, M. D., DENTIST.

VOLUME IV.

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the best amalgam* "stopping" of the day, at the same time drilling the root, and capping the nerve cavity with *silver plate the same as with gold*.

I do not know that I have a single copy of the "Recorder" on file, from its first issue to the present, but what has something in it in reference to inflammation and gumboils, or some objection to *filling dead teeth*. This fact convinces me that my theory in the matter is not generally known, as the following extracts will amply testify :

Vol. II., No. 4 page 62 : " * * * and the usual distressing symptoms, indicating pus, confined in an unyielding cavity, will be the result.

JOHN TOMES."

Vol. II., No. 6, page 118 : " These symptoms slowly increased, and at the end of three or four months, the periostium around the roots became inflamed and ultimately ulcerated, producing a disagreeable abscess in the gum."—N. S. DAVIS, on "*Amalgam*."

[Had N. S. Davis had his tooth *drilled* at the commencement of the "irritation," he would have saved it and himself the necessity of such an unfavorable report on Amalgam.]

Vol. 2, No. 5, page 89 : " * * As generally happens with teeth in this condition, when filled, they at length become sources of irritation in the jaw."—Ed. "*Recorder's*" *Remarks on "Trenor."*

Vol. II., No. 8, pages 156—157 : Remarks by Ed. "Rec." on J. S. Ware, and "J. S. Ware on diseased antrum," and *Ed. Remarks*.

Vol. II., No. 2 : Dental News-Letter, page 36, " * * If this results, and the inflammation continue, the tooth had better be extracted.—"R."

" Vol. III., No. 2, page 36 : " * * The next step in the formation of a gumboil, is the establishment of true inflammation."—*Dr. Allen's Address*.

[If a tooth is drilled to the *nerve cavity*, at *that stage* the gumboil will *never form*, but the inflammation will cease at once.]

Vol. II., No. 12, pages 223—227 : " ' Pathology of Toothache, by Dr. Heilden,' and Nervous Toothache, from ' Woman and her Diseases.' "

Vol. III., No. 3, page 61 : " * * It is true that teeth deprived of their pulp are often sources of local irritation."—*Ed. "Rec."*

In the 4th, 5th, 7th and 9th numbers of Vol. III., on the subject of Amalgams, by "C." numerous difficulties arise in which the writer could have given much more strength to his arguments and theory, if he had been familiar with this improved method of operating; and, lastly, I refer to page 181, Vol. III., No. 8, and page 196, No. 9, of same volume of the "Recorder." Had Dr. Cone known of this improvement and practised it, he would never have said that all teeth treated in *this way*, "will sooner or later end in inflammation and final loss, &c." Nor would

* Dr. A. Hill's "stopping," will no doubt supercede all others for this purpose; and I take this opportunity of rendering my conviction and testimony of its genuine worth and superiority over everything else of the kind heretofore offered to our profession.

the Editor of the "Recorder" have been obliged to extract those teeth he filled with "Hill's stopping."

I have been thus voluminous in extracts and reference, partly to refer the *authors* and readers of those articles to important cases where *drilling* would have been the grand desideratum in the first stages of inflammation; and partly to elicit as much thought and interest in the matter, from the profession generally, as is possible; for I honestly feel the *improvement* claims and demands it.

And now, since these are matters of *deep interest* to the patient, and sources of *profit* to the operator, I will endeavor to explain away all objections, and fortify the true principle on which the improvement rests.

1st. The aperture in the root is entirely protected by the gum, and not in the least subject to enlargement by decay.

2d. No dead tooth filled without this aperture will ever be exempt from causing inflammation or a "troublesome gumboil," over the point of the fang.

3d. Every dead tooth will contain more or less loose matter in the roots, which being closely confined by a plug or otherwise, will decompose till the small compass of the nerve cavity is fully charged with *gas*, and then commences the inflammation and pain which "results in supuration and gumboil."

4th. I am prepared to say that comparatively few cases of toothache, from *exposed nerves*, have occurred in my uninterrupted practice during the last nine years; but on the other hand, nearly all from the *loss* of vitality in the tooth, and the collection and *discharge* of the aforesaid gaseous matter through the alveolus and gum.

5th. I now relieve more cases of toothache by drilling to the nerve cavity than in any other way.*

6th. I have never known a gumboil to form over a root until the tooth had lost its vitality, (the opinion of some modern M. D.'s to the contrary,) nor even then, if an aperture was constantly open through the crown or side of the root.

7th. By *drilling* teeth, over which were troublesome gumboils, the inflammation and abscesses have immediately disappeared.

8th. The small aperture drilled in the root will always keep open, as nothing but gaseous or explosive matter is expected to discharge from it.

9th. I have fully tested this practice for the past twelve months, by

While writing this sentence, I was interrupted by a gentleman from New Orleans suffering with a tooth which had been filled in that city a month ago. I simply introduced a drill to the nerve cavity (without pain) which gave him instant relief and unbounded satisfaction.

killing hundreds of nerves, and drilling and plugging five times as many teeth, without even the first symptoms of a failure in a single case.

Lastly—I draw the following conclusions: that by this improvement, in connection with “Hill’s stopping,” or a better one of the kind, *two* of the greatest blessings to the suffering poor and unfortunate rich, have now been fully placed within their reach.

In conclusion, allow me a passing remark upon some of the laborious articles that have appeared in some of the late Dental journals and in numbers of the “Recorder,” on the subject of “filling the entire fang” with gold, in connection with the cavity in the crown. To this plan, I have two formidable objections. First: there is not one fang in twenty where the cavity originates on the back of the crown, or even between any of the incisors, that the decay can be effectually removed and the gold entirely packed to its extremity; and even in cases where it could be, there would be danger of forcing sufficient matter through the foramen to cause irritation and, perhaps, suppuration.

2d. It is often more trouble, and takes as much gold as would most cavities in the crown, and yet but few, if any, would appreciate our *efforts*, and much less be willing to pay anything extra, especially if the least trouble should follow the operation; and, besides, it is *useless*, for after removing the pulp and all extraneous matter, and firmly securing a cap and plug over the *nerve* cavity, the root will not be in the least danger of decay, (even after drilling half a dozen holes in it,) for all that part is, as intended by nature, most firmly defended and protected by the gum, and alveolus in which it stands.

For the Dental Recorder.

REMARKS ON PRACTICAL DENTISTRY.

DR. ALLEN—*Dear Sir*—As the pages of your journal are open for the free discussion of anything appertaining to the practice of Dentistry, I take the liberty, with your permission, to express my opinion on a few points, hoping that if I should fail of educing anything new on the subject, I may, at least, elicit remarks from others, that may prove beneficial to myself.

Metallic Models.

The first thing which I shall notice is, Which is the most suitable metal for making metallic models? For the male cast or model, I invariably use good bar zinc, and for the counter model, lead; being particularly careful not to get any lead mixed with the zinc, for, in that case, you

cannot cast as smooth and perfect a model. The lead being of a greater specific gravity, when in a state of fusion, it settles to the bottom, and occupies that portion of the cast which comes in contact with the plate, and thereby not being sufficiently hard to stamp the plate, so as to give a perfect impression of the mouth. Lead is mentioned by some as being suitable for either cast; but I have learned by experience that zinc is far superior for the male cast, lead being altogether too soft. It may answer for a small job, if the plate is thin and soft.

In melting the metals for casting, it is better to use two ladles, one for zinc, and the other for lead; so that you will not as it were imperceptibly get them mixed. I think the better way to obtain the metallic model, is to cast it in sand, and the counter model by pouring a sufficient quantity of fused lead in a cast iron-box, and immersing the zinc cast sufficiently deep, and holding it there, until the lead chills around it; and by using zinc for the male cast, you avoid the possibility of their running together. It is well known, that after melting several times, the zinc and lead become considerably oxidized; or, in common language, a portion of it goes to dross. By putting a small quantity of oil or grease in the ladle, when the metal is in a state of fusion, and allowing it to burn off, at the same time stirring the dross into the other portions of metal, until the grease is all consumed, it will convert the dross into its original state; leaving a small portion of black ashes on the top, which should be removed. The metal will then pour better and cast much smoother.

After stamping a plate, before heating again, every adhering particle of zinc or lead should be removed; for, if heated for the purpose of annealing or soldering, without being removed, if any adhere, it will unite with the plate, causing it to corrode in spots where the metal has united with the plate. It is more easily removed from a discolored than from a bright plate; consequently, it is better not to cleanse your plate after annealing, before stamping.

Soldering.

Many dentists, perhaps, are not aware that it is practicable to use solder, nearly or quite as fine as the plate to be soldered, when the metals composing the solder are properly proportioned. I have seen artificial teeth mounted upon 22 carat gold plate, having the clasps and linings soldered with from 12 to 16 carat solder.

The position in which Teeth should stand upon the Plate.

I always endeavor to arrange the teeth so that they shall, at least, stand perpendicular; and if practicable, and the general appearance is good, to incline a little inwardly. I have seen some jobs that were

kept up by atmospheric pressure, and caused the individual wearing them no trouble, until they come to bite on them, when the opposite side would immediately give way, and they would fall down in the mouth. The difficulty existed in the manner in which they stood upon the plate. Instead of standing perpendicular, they stood (if I may be allowed the expression) sprawling: that is, they were not full enough on the gum, or the cutting points stood out too far, serving as levers, to detach the plate from the roof of the mouth. Teeth standing properly upon the plate, will *generally* admit of biting upon, before the person becomes sufficiently accustomed to them, to keep them up without some difficulty while speaking.

Springing of Plates while soldering.

Dr. Sherwood's plan may answer for the upper set. I once tried a similar plan, by which I partially succeeded; but it also sprung in some of the teeth, (which were gum teeth) marring their contiguous edges. I have been much accustomed to using hammered instead of rolled plate, for full sets, which stamps much easier and more perfectly, and will seldom if ever spring, when properly secured. Rolled plate is much stiffer and more elastic than hammered, and consequently more liable to spring. The lower plate, after being stamped, and sufficiently filed away to prevent interfering with the motions of the tongue and lip, should have a half round wire soldered upon the edge of the plate; which forms a beautiful round edge, increases the firmness of the plate, and prevents that cutting, which is so often complained of by those wearing lower plates.

Amalgam Fillings.

I will merely add my testimony in favor of *pure* silver amalgam for plugging teeth in *some* cases. I have never been much in the habit of using it [amalgam] until within the last two years, from the fact of its being condemned by high authority. But when I came to investigate the subject, and examine *mere shells* of teeth that were plugged from five to twelve years since, that are, apparently, as sound as they were when they were first plugged, although much discolored, I could but be convinced that it was decidedly superior *in such cases* to any of the foils. And I have yet to see a case, if properly performed, where it has produced irritation, except in dead teeth, where *gold foil* would have produced the same results. When a *healthy* nerve in a tooth is exposed, by carefully removing the carious portions of the tooth, and placing a silver plate over the nerve, and then filling with amalgam, I have seldom had a failure.

J. C. D.

PROCEEDINGS OF THE SOCIETY OF DENTAL SURGEONS, OF THE STATE OF NEW YORK.

At the annual meeting of this Society, held at its own room, No. 607 Broadway, on Tuesday, Sept. 11th, the Society was called to order by the President. The minutes of the previous meeting were then read and approved.

A motion was made by Dr. C. C. Allen, that the regular order of proceedings be suspended, to allow the Society an opportunity to listen to the opening Address. While this motion was pending, Dr. A. Hill stated to the Society, that owing to ill health and professional engagements, he had been unable to prepare an Address.

REPORTS FROM COMMITTEES.

The report of the Treasurer was then made by G. E. Hawes; but the Society deferred its acceptance until it should be audited by the Executive Committee.

It is proper to state, that owing to the absence of the Recording Secretary, the account between him and the Treasurer, could not be settled before the annual meeting. The report showed the treasury to be in a highly flourishing condition. The amount of funds in the hands of the treasurer, being little short of four hundred dollars; which is an increase since the last annual meeting, of almost eighty dollars.

Executive Committee.

Reports from Committees being next in order, that of the Executive Committee was made through its chairman, Mr. F. H. Clark, and on motion accepted.

The Executive Committee take the present opportunity to congratulate the Society on another return of its anniversary, under the present highly favorable prospects, and on the fact that its members have remained undiminished by the fearful *epidemic*, which has so generally ravaged our country. Doubtless some of us have lost near and dear friends; for, considering the vast numbers who have been taken from among the living, since our last regular meeting, it would, indeed, be wonderful if such were not the case. Let us, therefore, be grateful to that kind Providence, which has so signally preserved *us*.

Believing, as we do, that the objects of this Society are beneficent and kind, and that the members generally, intend by its means to do good to their fellow-men, we may reasonably expect success to crown our efforts. If all those who have thought our prospects of being permanently successful not so flattering as they would desire, will put their hands to the work, we must succeed. The fact of our meeting together, to compare notes in regard to our different modes of practice will, alone, enable us to be more useful to our patients, by improving the quality of our operations. Many of us are now in possession of useful facts, which we should not otherwise have possessed.

It has been objected to this Society, that one of its objects was to instruct the younger and less informed of its members, and thus enable them to compete with the better or more experienced practitioners, without an equivalent. Be it so; but there are two facts to be considered, which greatly modify this objection: *First*, The inventive faculty is always stimulated by the obstacles which we meet with in our earliest efforts, and we are indebted to this very fact for many inventions which have been made in our art. *Second*, Those who stand foremost among us have no time for experiment, and do not feel the need of invention. To them we look for the light of *experience*, not for *new things*. By associating these two classes together, therefore, the effect cannot but be mutually beneficial. There are many, undoubtedly, who, when made acquainted with our progress, and our efforts for the general good of the profession, will be glad to unite their efforts with ours. To such let us extend the hand of fellowship.

Your Committee have looked forward with interest to this anniversary meeting as one, on the action of which much of our future usefulness depended, and they cherish a hope that those who have been lukewarm will wake up to new effort, and those who have taken a more *active* interest will be encouraged to persevere. The Committee regret that they have nothing of predominant interest to present beyond the transactions with which most of the members are acquainted.

The Executive Committee have made a verbal agreement with Mr. Asahel Jones for the joint occupancy of the room in which we now assemble. The Society is to have the use of it for all its meetings, for performing dental operations whenever it may be desirable, and for a safe depository for its library and dental apparatus. Your Committee has also furnished it with chairs, as directed by the Society.

(Signed)

F. H. CLARK,
BENJAMIN LORD,
MARTIN K. BRIDGES.

Mr. F. H. Clark presented the report of the committee appointed at the last regular meeting, "to report upon the expediency of granting diplomas or certificates of membership," which was on motion accepted, and by a vote of the Society laid on the table.

Library Committee.

Dr. H. Burdell presented the report of the Library Committee, which was accepted, and the names of those who had presented the Society with books for the library, ordered to be placed on the journal of the Society.

The Library Committee report, that since the organization of this Society, there has been presented to the Society for the formation of a library for the use of its members, between sixty and seventy volumes, besides several pamphlets upon the subject of Surgical and Mechanical Dentistry, and the collateral branches. Many of these contributions have been made by dentists who are not members of this society.

At the last anniversary, the committee reported the number of books and the amounts in cash which they had then received. Since that time,

the following books have been presented, and the following amounts in cash contributed to increase the library :

Harris' Principles and Practice, (3d edition) . . .	Charles C. Allen.
Two copies of Dental Recorder, (2d and 3d vols.) . . .	" "
Wilson's Anatomy, (2 vols.)	J. S. Ware.
Harris' Dental Surgery,	E. D. Fuller.
Koecker's Essay on the Teeth,	" "
E. Parmley's Essay on the Teeth,	Charles Merritt.
Brown's Dental Hygiene,	" "
Flagg's Family Dentist,	" "
Goddard's Dental Surgery,	L. R. Brodhead.
Harris' Dental Surgery,	James Alcock.

Contributions presented in cash:—

J. S. Dodge,	\$10
L. Covill,	2
T. Munson,	2
J. G. Barbour,	5—\$19
Cash from former contributions,	17
Total,	\$36

The following books have been purchased and paid for out of the above funds :

Harris' Dictionary of Dental Science,	\$5
Robertson on the Teeth,	1
American Journal of Dental Science, 2d and 3d vols.	5 50
Robinson on the Teeth,	2 50
Books for Records, Memorandum, &c.	1 25
Total,	\$15 23

Several other books have been ordered, which, together with rebinding and all other small bills, will consume the remainder of the funds now in the hands of the committee, which is at present about twenty dollars.

The books have all been covered with strong brown paper, labelled and numbered. A book-case has been purchased by the Society, and the Librarian has caused all the books to be deposited in it, and it now stands in the room occupied by this Society.

Your committee would also state that Dr. M. K. Bridges has presented a box containing several curious antique instruments and specimens of artificial teeth, &c., &c., all of which they have deposited in the case containing the books of the Society.

H. BURDELL, }
L. COVILL, } Committee.
C. C. ALLEN, }

Mineral Teeth.

The report of the committee on Mineral Teeth, which was appointed some time since, was then read by its chairman, Mr. F. H. Clark, and on motion accepted.

The committee on the improvement of mineral teeth met at the Society Room, on Thursday, the 6th of September, for the purpose of con-

sidering the best method of stimulating to renewed exertion, the manufacturers of mineral teeth. Letters were read from Messrs. Jones and White, and J. Alcock, offering to do anything in their power to meet our wishes, provided suggestions specifying the kind of improvement needed shall come from this Society, or any considerable number of the members of the profession.

Your committee have had this subject under consideration, and have agreed upon the following suggestions for the consideration of those engaged in the manufacture of teeth, and likewise for the action of the Society.

1st. It is agreed that the moulds should be so constructed that the same shaped crowns of teeth may have their necks of different lengths.

2d. All teeth should be colored the same through the whole depth of the enamel, and the body should be generally as nearly as practicable of the *same* color.

3d. In the manufacture of plate teeth, the pins should be placed as deeply as possible, and one pin as near the cutting edge as the strength or thickness of the tooth will allow, and another near the plate. Three pins should be placed in very long teeth. It would be well, in some cases, to place three pins in central incisors, which are pretty wide, as follows: two small ones near the cutting edge, and one larger one near the plate. These pins should all be headed to prevent their being easily drawn.

4th. Long molar teeth intended for the lower jaw should be made with their inner sides the longest,* and if convenient, should be hollowed in the middle to fit the plate. These will do better than the present forms, if their lower ends are made square.

5th. In making gum teeth, the gum should be more prominent in the middle than at the edges, and the cuspidati should have the centre of the gum more prominent than the others, and the upper ends of all gums of teeth should be curved a little inwards and left of sufficient thickness to allow them to be fitted to the plate.

Your committee are aware of the obstacles which the manufacturers have to encounter in endeavoring to please all with whom they have to deal, and do not expect that they will be willing to incur expense to satisfy all their whims and fancies.

One of our most celebrated manufacturers has gained much credit by the uniformity of his colors of different numbers, and his regular mode of arranging them for the convenience of selection by dentists. This is so great an advantage, in the estimation of some, that they will not take

* Molars and bicuspidæ should be made for each jaw as much as incisors. The inferior molars when set, must incline inwards at their tops, which makes it necessary to have the inner side longer than the outer, that, when set, their grinding surfaces may be level. Their lower ends, owing to the great width of the posterior part of the lower jaw, often have to be placed wholly, or in part, within the ridges of the alveolar process, and that they may be made to fit the plate without too much grinding the inner side, should be longer than the outer at the lower end of the tooth also. Inferior bicuspidæ should also have the outer cusp nearly over the axis of the tooth, so that it may close within the cusps of the superior bicuspidæ. If tooth manufacturers would make their teeth, according to these suggestions, with uniform crowns and of different lengths in the fang part, they would confer a great favor on those who are to use them.—ED. RECORDER.

the trouble to look at other teeth, although they may be in some cases superior.

Your committee have thought much on the subject of offering premiums for the advancement of this art, but as yet they have come to no definite conclusion. It has been suggested that some form of certificate or a medal, would be far more suitable than a reward in money. Others have thought that a set of moulds of the patterns wanted, to be got by this Society and loaned for a short time to each competitor, would be a better mode. The committee have thought best to leave this matter in the hands of the Society.

(Signed)

F. H. CLARK,
G. E. HAWES.
C. C. ALLEN,
B. LORD.

Metallic Casts.

The committee appointed to examine the subject of Metallic Casts, presented the following report through their chairman, Benjamin Lord, which was on motion accepted.

The committee to whom was referred the subject matter, contained in the resolution offered by Dr. Lord, at a regular meeting of this Society, in March last, desire to present the following report—

The resolution was as follows :

“*Resolved*, That a committee be appointed to report to this Society the best materials for castings, for the purpose of striking up gold plates.”

Your committee, in discharging the duties assigned to them in this resolution, find that the subject of metallurgy presents to them a more extended range for investigation upon this particular point, in the art of mechanical dentistry, than they had opportunity and conveniences to pursue. They have, therefore, confined their researches to those metals and alloys which are now in general use, by different members of our profession, with a view to ascertain their true character and fitness for the work they are designed to accomplish. After a careful examination of these metals, by a series of tedious and perplexing experiments, we find some peculiar property in most of them to recommend; but none seems to combine so many essential qualities for this service, as a combination of three parts zinc and one of tin. It is, therefore, our united judgment, that an alloy of these proportions is best adapted for castings. A die of this kind is capable of forming all the indentations and irregularities in a plate that may be required to imitate the model, when good gold of the usual thickness is used, without becoming defaced. The zinc having the ascendancy, not only maintains its character in hardness, but is also improved in strength and fusibility, by the tin. The affinity of these metals for each other being so strong, and the specific gravity so nearly equal, the tin is found to be uniformly distributed throughout the whole mass. By the intimate mixture of the particles in this state of union, the zinc is evidently supported at every point, as the contraction is diminished more than three-quarters, thus increasing its value for practical purposes. By repeated use, the proportions are retained longer than in the more complicated alloys, which require the

same degree of heat to fuse; and whenever any diminution is observed, it is easily restored. The above qualities, together with its simplicity and economy, are the principal recommendations of this compound.

Your committee might introduce in their report other mixtures of metals, useful in the laboratory, one of which may be used in skilful hands, with great facility and accuracy, by pouring the fusible metal directly into the wax impression, thus obtaining a perfect die, ready for use in less time than is usually required to prepare a plaster model.

But it is unnecessary to occupy your time by a minute narration of our experiments. In this attempt, we trust our labors will not prove altogether unprofitable; but may lead to farther investigation, which may result in some genuine good to this Society and to the profession.

BENJ. LORD.	} <i>Committee.</i>
GEO. E. HAWES.	
T. H. BURRAS.	
W. ROWELL.	
J. H. BLAISDELL.	

The committee on taking impressions, reported progress, and were continued.

On motion, the regular order of business was now suspended, to allow L. R. Broadhead, to introduce a case of diseased antrum, which was examined by the members, while Mr. B. gave a short history of the case, his mode of treatment, &c.

Dr. C. C. Allen called up the following resolution, which was submitted to the Society at its last annual meeting, according to the requirements of the Constitution.

Resolved, That the twelfth Article of the Constitution of this Society be amended, by omitting the word "annual" in the second line, and substituting the word *regular* for the word "annual" in the third line. This resolution was then passed by the unanimous vote of the Society.

Mr. F. H. Clark then called up his resolution, also submitted at the last annual meeting, in the following words:

Resolved, That the ninth Article of the Constitution of this Society, be amended, by adding after the word "regulations," "It shall have power to grant diplomas or certificates of membership, under such restrictions as the Society shall impose."

On this resolution the yeas and nays were demanded, and on being taken, it was decided in the affirmative by a constitutional majority of two-thirds.

Adjourned, to meet at half-past 7, P. M.

The first business which came before the Society at its evening session, was the resolution of Mr. F. H. Clark, appropriating one hundred dollars for the improvement of mineral teeth. After some discussion, it was laid over until the next regular meeting.

On motion, the results of many interesting experiments, upon the different metals and alloys, performed by the committee on mineral casts, were now exhibited, and explained by Messrs. Hawes and Rowell.*

The thanks of the Society were voted to the Committee on Casts, for the industry and perseverance which they had manifested; and it was resolved that they be remunerated, for the expense which they had incurred, by this Society.

The following letter was then read by the Secretary.

184 BROADWAY, SEPT. 10, 1849.

Most Esteemed Friend—When the question of clinical practice, for the benefit of the poor was in agitation, before the New York Dental Society, I requested Dr. J. G. Ambler to make an offer, on my behalf, of all the Dental Instruments necessary to forward that benevolent object. As I have not yet learned that any further steps have been taken in the matter, and would regret that the intended establishment of an institution, which would reflect so much credit on the Dentists of the Empire State, should fall through from lack of means, and be left to other than the able heads who originated it, I shall esteem it a privilege to be permitted to contribute the instruments towards its foundation. Permit me, therefore, to make you the medium through which to renew my offer to the Society, who may either appoint a committee to select them at my store, or leave it to my judgment.

Respectfully yours.

JOHN D. CHEVALIER.

To Dr. George E. Hawes,
No. 8 Park Place.

On motion of C. C. Allen, it was resolved that the names of the members be called, to ascertain who were willing to give their services to gratuitous operations for the destitute, not to exceed one half day in each month for each member. The result showed thirteen yeas and five nays.

On motion, it was resolved that the yeas constitute a committee to carry into effect the clinical operations.

On motion, resolved that a committee on unprofessional conduct be appointed. The following gentlemen were then nominated by the Chair, and confirmed by the Society: J. Lovejoy, and C. C. Allen.

An application for membership, from William W. Cross, was then presented by the Secretary, and, on motion, referred to the Executive Committee.

The Society then proceeded to the choice of its officers for the ensuing year, which resulted as follows: J. LOVEJOY, President; F. H.

*These experiments, with the consent of the above gentlemen, will be noticed hereafter in the Recorder. [ED. REC.]

CLARK, 1st Vice President ; L. COVILL, 2d Vice President ; C. C. ALLEN, Recording Secretary ; H. BURDELL, Corresponding Secretary ; G. E. HAWES, Treasurer ; F. P. CHASE, Librarian ; M. K. BRIDGES, E. BAKER, J. G. AMBLER, B. LORD, E. D. FULLER, Executive Committee.

The following resolutions were offered by C. C. Allen, and carried by a unanimous vote.

Resolved, That the thanks of this Society be returned to the Mississippi Valley Association of Dental Surgeons, through Dr. James Taylor, of Cincinnati, for a copy of the first and second volumes of the Dental Register of the West, and that the Librarian be instructed to subscribe for the work for this Society.

Resolved, That the thanks of this Society be returned to Mr. S. W. Stockton, for copies of the third and fourth volumes of the Dental Intelligencer, and that the Librarian be instructed to subscribe for the work for this Society.

Resolved, That the Librarian be instructed to subscribe for the American Journal and Library of Dental Science.

The following resolution, by L. Covill, was also unanimously passed :

Resolved, That the thanks of this Society, be renewed to Mr. Chevalier, for his kind offer, with an assurance that, when the Society has made arrangements for clinical operations, it will be gladly accepted.

C. C. Allen and B. Lord were appointed a committee to confer and act with the Librarian, in selecting and purchasing books and arranging library.

E. Baker and L. Covill were appointed to address the society at its annual meeting, in 1850.

On motion, adjourned, sine die.

J. G. AMBLER,

Recording Secretary.

From the American Journal and Library of Dental Science.

On filling Teeth when the Pulp-Cavity is Exposed, and previously to the Death or Destruction of the Pulp. By CHAPIN A. HARRIS, M. D.

THE importance of the preservation of the vitality of the teeth is admitted by all having any knowledge of the laws of the animal economy. In proportion as it is diminished, does a tooth approach in its nature, a foreign substance, and hence is liable to become obnoxious to the living parts which surround it. But the deleterious influence resulting from the presence of a tooth after the destruction of the lining membrane, is not always occasioned by direct irritation produced by the organ itself; it is, perhaps, in the majority of cases, principally dependent upon an accumulation of morbid matter in the root of the tooth, and hence, by filling this, it may, in the majority of cases, be measurably prevented.

Still, if the vitality of a tooth, after the lining membrane has become exposed, can be preserved, it is certainly better to do so, but with regard to the practicability of doing it, dentists, generally, are somewhat sceptical. They believe that inflammation and suppuration of the pulp, must follow, as a consequence, any operation which may be performed with a view to its accomplishment, and for a long time the writer of this article entertained the same opinion. He has occasionally filled a tooth after the pulp had become exposed, for nearly fourteen years, but having regarded the operation more as experimental, than as one the success and utility of which were well established, he has refrained from recommending it very confidently to his professional brethren, until he should feel fully warranted in doing so. Even now, although he has performed the operation successfully in numerous instances, he feels considerable hesitancy with regard to the propriety of expressing his views upon the subject, nor would he at this time, had he not been frequently requested to do so.

Filling a tooth, after caries has penetrated to the pulp-cavity, is an operation which has been frequently performed, but until recently it has been thought necessary to cap the pulp, previously to introducing the filling, so as to prevent the material employed in the operation from coming in contact with it. Dr. Koecker, formerly of Philadelphia, but now of London, was the first to propose this operation. The method of procedure he recommends, and which at the time of the publication of his *Principles of Dental Surgery*, in 1822, he says he had practiced for upwards of thirteen years, with success, is as follows :

First, after the removal of the caries, to give to the cavity a proper shape for the reception and retention of the filling ; then to free the cavity by means of a little raw cotton, moistened with warm water, of any bone dust that may be in contact with the nerve.

Second, if the lining membrane is not wounded he proceeds at once, after perfectly drying the cavity, to fill it, which he does in the following manner : He places a small plate of very thin leaf lead upon the exposed nerve and the surrounding bone, and then proceeds to fill the cavity in the ordinary way with gold.

Third, when the lining membrane is wounded and bleeds, he cauterizes the part with an iron wire, heated to a red heat, using the precaution to prevent the wire from penetrating the exposed nerve. After the hemorrhage has been thus arrested, and an artificial cicatrix formed, the cavity is freed, in the manner as before described, from all loose extraneous matter, the nerve covered with sheet lead and a gold filling introduced.

For a more minute and detailed description of the method of procedure adopted by Dr. Koecker, the reader is referred to his Principles of Dental Surgery. In the hands of other practitioners the practice has been much less successful, and consequently, seems to have fallen into disrepute.

The reason which Dr. K. assigns for covering the nerve with lead, is, that he believes it to have a more "cooling and anti-inflammatory effect," than gold. That the practice may have been occasionally successful in his hands, the two cases which he adduces leave no room for doubt, but that the actual contact of any foreign substance with so exceedingly delicate and sensitive a tissue as the pulp of a tooth would, in a large majority of cases, be productive of irritation, there can be no question. Experience has fully established the correctness of this opinion.

Dr. Fitch recommends covering the nerve with a thin gold plate, previously to the introduction of the filling. This is certainly preferable to covering it with leaf lead, but unfortunately it is difficult in the majority of cases, to fit it with sufficient accuracy to the cavity of the tooth to prevent it from becoming displaced in the introduction of the filling. Besides, a cap of this sort would frequently occupy so much of the cavity, as to prevent the insertion of a filling in a sufficiently perfect manner to secure the preservation of the tooth.

The last named writer proposes another method of treating an exposed nerve, with a view to the preservation of its vitality, which he regards as preferable to either of the foregoing. It consists in the application of some powerful astringent to the exposed nerve, and keeping it in contact with it for a considerable length of time. Among the astringents which he has employed, are, alum, borax, and the gall-nuts, but he prefers the last. His method of using it is, to break the nut, take a small piece from the soft part, apply it to the exposed nerve, and fill the cavity with yellow wax. This may be replaced every ten or fifteen days until the sensibility of the nerve and lining membrane are so much reduced as to permit the introduction of a filling. This practice has not proved as successful as the remarks of Dr. F. upon the subject would lead one to expect. The result of the writer's experience will not by any means justify him in recommending its adoption. But were it otherwise, the great length of time required for the accomplishment of the object proposed to be gained by it, would, in most instances, constitute an insuperable objection to it.

In fact, so unsuccessful had every method of treatment proved, which had been proposed for the preservation of the vitality of a tooth after

the pulp had become exposed, that the writer at one time had come to the conclusion that it was useless to attempt it. Whenever, therefore, he met with a molar or bicuspid in this condition, he advised its extraction; and his practice, with an incisor or cuspidatus, was to extirpate the nerve and fill the tooth. But in the spring of 1834, he was consulted by a female friend, about twenty-five years of age, in relation to her central incisors, which were in a decaying condition. Upon examination, the caries was found to be situated in the medial approximal surfaces, and had evidently penetrated the teeth to a considerable depth. With the exception of the discoloration occasioned by the caries of these two central incisors, the teeth of this lady were beautiful; they were pressed firmly against each other, but in other respects her teeth were well arranged. They were rather long, but of a medium size, of a light cream color, and neither very hard nor very soft.

The examination of her teeth having been completed, she requested that such operation might be performed as would be most likely to secure their preservation. Not being able to operate upon the teeth at that time, she was requested to call again. Punctual to the time appointed, she made her appearance. The teeth were separated with a file in the usual manner, and the decayed part, from first one, and then the other, removed; but in this part of the operation the lining membrane of each tooth was exposed and slightly wounded. The hemorrhage, however, was very slight, and soon subsided. Here was a dilemma from which the writer scarcely knew how to extricate himself. To extirpate the nerves, and thus rob the teeth of a great portion of their vitality, seemed, at this time, almost equivalent to their destruction. He was satisfied that the treatment proposed by Dr. Kocker could not be successfully adopted, and the size and shape of the cavities in the teeth would not admit of the application of gold caps, as recommended by Dr. Fitch. As a dernier resort, therefore, he determined to attempt to fill them over the exposed pulps, hoping that he might be able to introduce the fillings without coming in contact with these highly sensitive tissues. This, both to his own and patient's great gratification, he succeeded in doing. Still, he was apprehensive that the operation would not prove permanently successful. He was fearful inflammation of the lining membrane would supervene, that the pulps would become tumefied, protrude through the openings, come in contact with the fillings, and that suppuration would ultimately take place. On the other hand, he hoped that by an operation of the economy like that which is set up when the crowns of the teeth are worn off, the pulp-cavities might be

gradually filled up by a deposition of bony matter, or in other words, that the pulps might become wholly, or at least partially, ossified.

His fears were not immediately, nor his hopes ever fully, realized. He had frequent opportunities of examining the teeth for about four years after the operation had been performed, and the only inconvenience which seemed to result from it, was increased susceptibility to the action of heat and cold, but at the expiration of about six or eight weeks this subsided. The teeth retained that peculiar animated appearance which characterizes healthy living teeth, as he was informed, for nearly seven years, when they became slightly sore and painful to the touch. In a short time after, an abscess formed over each, and the teeth then assumed a brownish, muddy aspect.

That inflammation and suppuration of the pulps of these teeth should have occurred seven years after the operation was performed, may appear a little strange, and it would be interesting to know, if all the facts connected with the history of the case could be ascertained, whether the fillings had anything to do with the inflammation of the lining membrane which finally supervened, or whether it was dependent upon the state of the constitutional health or other causes? But the absence of such facts may render it improper to attempt a solution of these questions.

The apparent success, if the operation in the case just described be considered a failure, was certainly sufficient to justify its repetition; but regarding the preservation of the vitality of teeth in the condition in which these were, as almost impossible, the writer did not attempt to fill another, under similar circumstances, for about three years. The tooth in the next case was a bicuspid, and in a few weeks it became discolored, assuming an opaque and brownish appearance, indicating suppuration of the lining membrane and pulp. An alveolar abscess soon followed. Some two years after, he repeated the operation on two teeth, and in both cases with success, or at any rate the teeth retained their vitality and natural color for several months. From this time, he occasionally performed the operation, and with various success, but succeeding in by far the largest number of cases, until 1846. Still he regarded the operation in the light of experiment, and did not, from his own experience, feel safe in recommending it to others. He did, however, mention it to a number of professional friends, detailing the method of procedure which he adopted, and requesting that they would perform the operation whenever favorable cases should occur in their practice. Several of these gentlemen have performed the operation on a number of teeth, and on the majority, as he has been informed, with success.

Dr. C. O. Cone has filled about fifty teeth after the lining membrane had become exposed, and up to the present time, so far as he has been able to ascertain, with success in forty-three or forty-four of the cases. He filled three teeth, a first left inferior molar, and the first superior bicuspid of a young lady, seventeen years of age, a relative of the writer, about eighteen months since. In two of the teeth, the lower molar and one of the bicuspides, the operation, up to this time, has proved successful; but in the other, inflammation and suppuration of the lining membrane and pulp took place about three months after the operation was performed, but the occurrence of alveolar abscess was prevented by the timely removal of the filling for the escape of the matter. After the diseased action which had been induced about the extremity of the root had subsided, the pulp-cavity, to the extremity of the root, was properly cleansed and filled.

Since the commencement of 1846, the writer has performed the operation on, probably, one hundred and fifty teeth, and up to this time, so far as he has been able to ascertain, on about twelve out of every thirteen with success. That inflammation and suppuration of the lining membrane and pulps of some of the teeth which have thus far escaped, may have taken place, he thinks highly probable, but if the vitality of four-fifths, taken under the most favorable circumstances, can be preserved, for from two to ten years, the operation will still be a most valuable one; and if it can be preserved for, from two to ten years, no good reason can be assigned why it should not be for a greater length of time. The loss of vitality, when it occurs a year or more after the operation has been performed, can scarcely be wholly attributed to the presence of the filling; it is doubtless, in some degree, dependent upon constitutional or other causes.

The operation to be successful, must be carefully and skillfully performed, and only under certain circumstances; every particle of carious or decomposed bone, should be removed previously to the introduction of the gold, and this should be inserted in such a manner that it shall not come in contact with the exposed pulp; or, in other words, there should be a small space between the gold and pulp of the tooth. The introduction of the filling should be commenced on one side of the cavity, and fold after fold introduced, without carrying those immediately over or opposite the exposed pulp to the bottom of the cavity, until every part, except a small space next the nerve, is thoroughly filled, employing in the condensation of the metal only lateral pressure. When no more gold can be introduced, the extruding portion may be consolidated, and the surface finished in the manner as described in another place

by the writer.* It is also important that the lining membrane be free from inflammation, and that the tooth never has, and that it does not ache at the time the operation is performed. Nor should the tooth be very soft, for in proportion as it is hard will be the prospect of success in the operation. The habit of body, too, of the patient, should be as free from irritability as possible, and in other respects the general health should be good.

The writer will not enlarge further upon the operation in question; he considers his experience in it yet too limited to enable him to do so with profit. Although he is disposed to think favorably of it at present, its ultimate value, to some extent, remains to be determined. Hereafter, he may furnish the readers of the Journal with the result of his observations and experience upon the subject more fully.

IMPOSITION PRACTISED BY DENTISTS.

Among the many proofs of mal-practice which have come to our knowledge, we have seldom seen or heard of any more reprehensible than one which was mentioned to us, not long since, by a professional friend. He stated that he had recently been consulted by an individual who, a short time before, had had several of his teeth filled, but which had ever since been more or less troublesome, and occasionally sore to the touch and painful. Upon examination he at once discovered that the caries had only been very partially removed, and the fillings introduced in a loose and imperfect manner. On making these facts known to his patient, he was requested to remove the old fillings and insert new ones. In the removal of the fillings which he found in his teeth, he discovered that they consisted principally of tin foil, the orifices only being filled with gold, and both so imperfectly consolidated that a common plugging instrument could, with ease, be readily passed through them.

To introduce gold into a tooth in this manner, is bad enough, as no good whatever can result from an operation thus performed, but to fill two-thirds of the cavity with tin, and the other third with gold, leading the patient to suppose that the last named metal was the only one employed, is a species of mal-practice that cannot be too strongly censured. Fillings of bees-wax, would contribute quite as effectually to the preservation of teeth, and possess the advantage of being *rather* more easily introduced while they would not be so likely to occasion uneasiness by exciting galvanic action, which the contact of two different metals in the mouth is almost certain to do.—*Balt. Ed. Am. Jour.*

* See Principles and Practice of Dental Surgery.

NEW YORK DENTAL RECORDER.

OCTOBER, 1849.

VOL. IV. OF THE DENTAL RECORDER.

With the present number, we commence the fourth volume of the New York Dental Recorder, a work which from a very small beginning has been gradually enlarging its proportions from year to year; and (if we may judge from the increase in its subscription list, now double what it was at the end of the first volume, and from the letters of commendation which we are almost daily receiving,) now esteemed and welcomed as an agreeable and instructive monthly visitor to all its patrons and subscribers.

We have sought to make the Recorder a valuable practical work to members of our profession who are anxious to learn the practice of other dentists for the purpose of improving their own; and with this view we now solicit communications from practical men, that they may become more acquainted with one another, and thereby consolidate, or finally settle upon the best and most approved methods.

Every year increases the necessity and importance of the dental profession in the estimation of the public, and brings also an increase in the number of its practitioners. If its usefulness is to be increased in proportion to the demand for its services, it is important that the younger members should be thoroughly inducted into all the mysteries of the art and science possessed by those who are older and more learned. With this view we trust that our brethren will use all their efforts to encourage and sustain our dental colleges and all our dental periodicals, not only by subscribing for the latter, but (what is more important, paying for their subscription) by communicating their improvements and inventions, and their own peculiar views and methods of practice. Almost every vender of patent instruments or materials, whom we have ever conversed with, disclaimed the intention of making money out of his improvement, his only wish being to benefit the profession in the most effectual manner, and secure to himself the honor of the improvement. Now this latter object can be in no way so certainly and surely accomplished as by immediately publishing the invention or improvement. There it will then stand in black and white; and if any dispute should arise about its paternity, the profession will always be most indulgent to the one who has been most generous to them. We say, then, publish what you know, and secure the honor of it; but do not hazard

both profit and honor by endeavoring to make money out of your own brethren.

The typography of the present volume, as will be seen by this number, will be greatly improved—the type being all new and the matter leaded—while, by an alteration in the size of the type, from two to three pages more will be contained in each number. On the whole, it is hoped that with these improvements, and no lack of exertion on our part, the Recorder will be more acceptable to its readers than it ever has been.

HOW TO USE ARTIFICIAL TEETH.

The following letter has been received from one of our subscribers, and describes very well a difficulty which all practising in this department of dentistry often meet with, and which is sometimes more trying to the patience and temper of the dentist, than all the trouble experienced while doing the work.

DR. C. C. ALLEN—*Dear Sir*—Your Recorder I consider a valuable work to the profession, and hail its monthly visit with anticipation and eagerness.

I hope soon to find an article in it by its editor, or some of its contributors, written expressly for a class of our patients, who are obliged to resort to full sets of artificial teeth. It may be said they would never see it; true, they would not unless it was shown them, which would be attended with little trouble. A lady called on me a short time since to have a complete set of artificial teeth adjusted. While going through the various manipulations, I endeavored to prepare her for the trial of learning to use them, as I discovered she was anticipating much enjoyment with them as soon as completed, (no uncommon thing; often persons think they may enjoy a feast of hickory nuts, or some fancied dish that requires much chewing, as soon as they get their teeth.) The teeth were finished, and thought to be a good fit; but in a few days the patient returns. 'Why, sir! how is this? I can't eat at all with my teeth. I like them well in other respects; but if I undertake to eat on one side, the plate comes off the other; besides, I can't taste anything.' These complaints are of frequent occurrence, and familiar to the ears of every dentist. In the case above mentioned, finding the lady was not at all conversant with those who had worn artificial teeth, I proposed at once calling on one who had a set similar to her own. After having an interview with her, she returned in much better spirits, said she felt encouraged, since which no complaint had been heard from her. A well written article, enumerating the difficulties almost always to be met in getting used to artificial teeth, would do some patients more good than hours spent by the dentist (employed) to convince them of the need of exercising a little patience. Yours, &c. H. F. B.

We have known lectures of this kind from those who were experienced in the use of full sets of artificial teeth, to do great good by

encouraging patience and inspiring confidence in those who are just beginning with them. A little instruction from the dentist will also often assist patients materially in overcoming their first efforts at mastication. They should be told always to press backwards when endeavoring to bite through any article of food with the front teeth, as this will assist very much in keeping up the back part of the plate, while by drawing forward the contrary effect would be produced. They should also be told to make the first attempt at mastication with the bicuspid teeth, as these teeth stand more directly under the jaw, and on that account are less inclined to tilt outwards when used, and, standing midway between the front and back teeth, pressure upon them supports equally the front and back parts of the plate. They should all be instructed not to take them from the mouth while eating, on account of the inconvenience which is experienced when first used, but to persevere constantly until the inconvenience and awkwardness is overcome. If, in the mean time, irritation is produced by the plates, as is often the case, until the mouth becomes toughened by contact with them, or may arise from the plate being a little too large or tight; they should have immediate recourse to the dentist who should promptly make such alterations as are necessary. By wearing them a part of the time only, the patient will never become accustomed to the use of them, and will never feel right without them. They should, if very sanguine, be warned against expecting too much from them at first; but be told that they must expect some trouble and inconvenience before they will perform all which may be reasonably expected from them after a little practice.

By pursuing the above course, dentists will much oftener succeed in giving entire satisfaction to their patients than if they promise them in the onset a set of teeth with which they can eat as well as they ever could with their natural ones. This should be left for those who wear them to assert, as they often do, when they have become accustomed to the substitutes, and have forgotten how much better their natural teeth once were.

DRILLING PORCELAIN BLOCKS.

The greatest objection to the use of blocks, in the construction of artificial teeth, is their liability to break, from an accidental fall, or other sufficient cause. This is a misfortune which, in most cases, can only be remedied by applying a new block in its place. It also sometimes happens, that after long service, the pins which confine the blocks to their gold backs, give way, and the blocks come off from this cause. This will often happen, when we depend only upon the pins, after the

teeth have been used two or three years, especially with those who use them hard.

A lady came to us a few months since with a side block, containing the cuspis and two bicusped teeth, quite loose and apparently ready to fall off. Several of the wires were broken off, and one or two drawn from the solder. We removed the block and took it to a lapidary who drilled each of the bicusped teeth through their whole length, two substantial gold pivots were soldered to the plate, the block slid on to them and rivetted, and the backs again soldered as securely and thoroughly as the remaining wires would admit of, which made it stronger than ever.


In manufacturing the blocks for a set of these teeth, the workman forgot to pierce them with holes for springs. We took them to a lapidary, and in a few hours the holes were drilled and the blocks ready to mount.

Those who have occasion to employ a lapidary for this purpose, we would recommend to Mr. W. Newsham, No. 298 Broadway, who is an excellent workman in his line, and very moderate in his charges.

DELINQUENT SUBSCRIBERS.

Those subscribers who have not paid for the third volume of the Recorder, will receive the last number of that volume, containing title-page and table of contents, on remitting to the editor, two dollars, the amount of their subscription. The present number is sent to all the dentists whose names we have on our list, after which it will be discontinued to all those who remain in arrears for Vol. III. Those who are pleased with this specimen number, are respectfully solicited to subscribe to the work and to communicate for its pages. Correspondents frequently write us that they have thought of furnishing us with some of their ideas for publication, but suppose that we have an abundance from those who are better qualified than themselves; but this is not always the case, and as we are desirous that the Recorder should represent all the thinking portion of our profession, we solicit such to communicate their mite for publication.

Any of our old subscribers who do not wish the work continued, will please to return *this* number by mail, or leave it in the Post-Office, that the Postmaster may inform the Editor of their wish to discontinue the work.

 We call the attention of our readers to our advertising sheet, in which there are several new advertisements, and alterations and amendments made to many of the old ones.

NEW YORK DENTAL RECORDER.

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SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.

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No. 2.

ON SPRINGING OF PLATES.

BY W. H. ELLIOT.

THE springing of plates while being soldered seems to be occupying some attention at the present time, and as the writer has investigated the subject to his own satisfaction, he begs to offer the following remarks :

In the first place it is folly for us to expect to avert accidents of this description without becoming, as far as practicable, acquainted with their causes before we begin, for by so doing our efforts, being made at random, would be as likely to increase as prevent the difficulty we wish to avoid. Now the springing of a plate while being soldered, if it have been thoroughly annealed during the process of striking up, is owing to its being unequally heated under the flame of the blow-pipe. If that part of the plate upon which the flame strikes be heated to a bright red, while the margin is scarcely raised to a black heat, expansion must take place unequally, and consequently the form of the plate be altered.

During the process of soldering, that portion of the plate which covers the roof of the mouth is usually heated very much hotter than the outer parts, they being covered on both sides by a mass of plaster and sand ; and as the outer portions of the plate are too firm to yield to the expansive force of the middle, the depression in the roof is increased by the extension, and when its proportion has once been altered by any cause, it will not of its own accord return to its former shape.

Any effort to prevent the unequal expansion of a plate by building about it a quantity of mason work, supported by a frame-work of iron, however strong it may be, will, of course, prove abortive ; and until we can by some means overcome this difficulty, plates will continue to spring while being soldered.* The following precautions very much lessen the evil, but to surmount it entirely need not be expected while the blow-pipe is used.

* If any further evidence be required of the correctness of the writer's position, it may be found in his old method of soldering teeth, which consisted in placing the work in a large crucible filled nearly full of plaster and sand, and then in heating the whole mass gradually in the furnace until the solder flowed freely, by which process the plate was never altered in the slightest degree.

First: the plate must be thoroughly annealed after it has been brought to fit upon the model, and then struck up again. Second: all parts of the plate except where it is actually necessary for the solder to flow should be covered with plaster and sand, so as to prevent the flame from acting upon too large a surface. And lastly: the whole mass should be raised to a low, red heat in the furnace, before it is placed before the blowpipe and then soldered as rapidly as possible.

If, when done, the plate be found so much altered as to effect its utility, it may be perfectly restored to its original form in the following manner: place the work upon the bench with the teeth upward, then pour upon the plate, within the arch formed by the backs, a quantity of Plaster of Paris mixed with as little water as practicable, and with this material build up a block about one and a half inches in thickness. The top of the plaster should then be trimmed perfectly level, and when hard enough, removed from the plate, to facilitate which it is necessary to cover the backs and grinding surfaces of the teeth with a thin sheet of wax, before pouring the plaster.

The face of the block, which was formed by the plate, should then be cut away to the depth of half a line, leaving untouched a margin about one-eighth of an inch in width all around it. The block may then be placed upon the bench with the face upward and then work upon it with the teeth downward, then with the thumb of the left hand resting heavily upon the plate over the middle of the block, to prevent jarring and assist in restoring its form, a few light blows upon the plate within the margin left upon the face of the block, with a small round faced hammer, will produce the desired alteration.

It is not the middle of the plate alone that is effected by the process, but its whole form undergoes the very reverse of that change which is caused by heating it unequally. The writer has never had the misfortune to injure the plate or teeth by this process, nor has he ever failed to obtain the most gratifying results.

DUBS' COMPOUND UNION SCREW FORCEPS.

In compliance with the wish of our correspondent we publish the following communication, although the subject is of hardly sufficient importance to occupy so much space in the Recorder. We do not know who was the first inventor of the spring and ratchet, attached to the screw in Dr. Huliher's root forceps, but we have always given the credit of all inventions or improvements to the persons who first published them to the world, and we shall continue to do so until proof substantiating the claims of others is clearly set forth.

From an article published in the last number of the American Journal of Dental Science, it appears that Dr. Dubs obtained a patent for the above improvement on the 17th day of October, 1848, and our correspondent states that "his specification and caveat were entered on the records of the Patent Office about sixteen months previous to the date of his patent," this would carry it back to June, 1847, while, in August, 1846, about eight months before this time, a practising dentist in Massachusetts, who had never been in Natchez nor heard of Dr. Dubs, suggested the improvement to the editor of the Recorder, who, on his return to New York, mentioned the same to Mr. Chevalier. Mr. Chevalier also states that several other dentists suggested the same improvement about the same time. The fact that so many different persons saw at once, on examining Huliher's forceps, that it was capable of being improved in this manner, (for this is the principal step in the invention,) detracts very much from the credit or honor of the inventor, for who would honor an individual for suggesting or inventing a thing which was at once apparent to so many?

We trust that the publication of the following communication will exonerate us from any intention to do injustice to Dr. Dubs or any other person concerned.

To the Editor of the New York Dental Recorder :

SIR,—Although not at the present time, as I once had the honor to be, the editor of a Literary and Scientific Journal, still my connection with the press in the South gives me the opportunity, which I most gladly embrace, of keeping in view the progress of the numerous professional and scientific Journals which have arisen so lately in our country. The important department of Dental Surgery, almost the latest to receive the illustration and benefit of the periodical press, can now boast of leading and attractive Journals that shed the light of science over the profession, now as elevated and commanding by its talent and learning as any other profession for the amelioration of the human condition. I never had the pleasure of seeing a number of your admirable monthly periodical, "The Dental Recorder," until a friend handed me your July number, Vol. III., No. 10, with the contents of which I was both instructed and pleased. I cannot but return my thanks to the editor for the really scientific information I gained by a careful perusal of his reply to a New Hampshire Dental Surgeon, soliciting information in regard to one of the most triumphant achievements of Dental Surgery. Such clear-headed and truly surgical views should be read and treasured in the minds of every Dental operator in our country.

In the editorial notices of that number, it could not escape my notice

that injustice,—no doubt unwittingly and under the influence of false information,—was done to an eminent surgeon dentist, of Natchez, Dr. Charles H. Dubs, in relation to “Hulihen’s Screw Forceps,” the insinuation being broadly made that Dr. Dubs was not the original inventor of that particular improvement in an instrument combining the conical screw and the forceps, which he claims to have invented, and has secured by Letters Patent. I must trust in your sense of justice and love of even-handed truth to publish, in your valuable Recorder, the facts in this case, as known to the friends and acquaintance of Dr. Dubs in this city, where his genius and eminent abilities as a Dental Surgeon have secured him a wide and valuable practice, and friends that cannot see him misrepresented without an attempt at vindication. No man has been more abused and misrepresented than Dr. Dubs, and all chiefly through the industrious misrepresentations and false publications of a dentist from Philadelphia, who seems to have supposed that the best mode to introduce himself to Natchez practice, was to calumniate and run down the oldest and most popular dental surgeon in the city and vicinity.

In early life Dr. Dubs, not now even in the meridian of his years, was a most ingenious and scientific watch-maker, and thus acquired a most surprising accuracy and neatness in the execution of anything connected with dental operations. His ingenuity extended also to the manufacture and improvement of the instruments used in practical dentistry; and he now has in his possession a sketch-book, in which may be seen the initial drawings of his improvements, while engaged in perfecting his “Patent Compound Union Screw Forceps,” from the year 1843, up to the time he secured his patent in 1848. By the way, it is an important fact that his specifications and caveat were entered on the records of the Patent Office about sixteen months previous to the date of his patent. It is known here that he used his instrument on ladies and gentlemen long before a description of Dr. Hulihen’s instrument appeared in the Dental Journal in 1845; but, before he took out his Letters patent, having heard of Hulihen’s “Root Forceps,” Dr. Dubs was so careful not to infringe that he sent and purchased one of these instruments, sent it on to the city of Washington to satisfy the Commissioner of Patents, who decided that there was no possible infringement on Hulihen in the beautiful and effective mechanism which Dr. Dubs invented, attached to the screw and forceps, and for which he has secured an inviolable patent. The Hulihen instrument thus sent on, is retained, along with that of Dr. Dubs, among the models of the Patent Office. Does such conduct look like *stealing an invention*!

The editorial article in your Recorder, speaks of Mr. J. D. Cheva-

lier, as having made the same instrument before Dr. Dubs obtained the patent. This may be, and yet the very information on which it was made, may have been obtained from Dr. Dubs himself. In 1846, Mr. Isaac Hill, I am informed, travelled through the south as agent for the sale of Mr. Chevalier's instruments of Dental Surgery. He saw the instrument of Dr. Dubs, and wished to secure the manufacture of them, for his principal, Mr. Chevalier. Mr. Chevalier, at that time, had no such instrument! Was Mr. D. D. Dickinson, who suggested the instrument to the writer of the editorial, the same Dr. Dickinson, who was a Dental Surgeon in Natchez, and celebrated as a naturalist? If so, it can easily be accounted for, how he knew how to make the instrument in question!

With regard to the practice of obtaining patents by professional gentlemen, which the editorial considers a *blushing shame*, there are various opinions. They have the right of all other citizens to secure their inventions; and I am informed it was the intention of Dr. Dubs to have presented his beautiful instrument to the profession, until otherwise determined by base calumny and detraction. He was obliged to get a patent to secure the paternity of the improvement to himself, and the honor of being its inventor. When regular physicians cease to prescribe and use patent medicines, and when your own "Dental Recorder," shall cease to advertise "Levitt's Patent Enamelled Plates for Artificial Teeth," it will be time to go into hysterics about a patent instrument of Dental Surgery of great and acknowledged value. Dr. Dubs has now an agent residing in Philadelphia, his brother Joseph Dubs, empowered to sell State rights for the manufacture of his invention, and all who infringe must calculate on the expenses of a prosecution for damages.

With profound respect and wishes for the wide success of your "Recorder," permit me to subscribe myself your devoted friend.

Natchez, July 10, 1849.

A MISSISSIPPIAN.

P. S.—Since the above was in type we have received the Concordia Intelligencer and the Natchez Gazette, containing two very silly articles upon this subject. They were probably written to make business capital for Dr. Dubs in his own vicinity, by some very kind hearted friend. From the tone and tenor of these two articles, we should think that the question, who first invented the COMPOUND UNION SCREW FORCEPS, had become a national one, upon which the north had taken side in favor of Hulihan, and the south for Dubs, threatening the peace and prosperity if not the stability of the union.

Now we do not care a pin about who was the original inventor, any

more than we care to know who struck Billy Patterson, except to do justice to the claimants; and that questions of this kind may not hereafter arise, we now advise all who have invented, or who may hereafter invent or improve any dental instrument, immediately to publish the same in one of our dental periodicals, before any rival claimant comes forward to rob him of the honor of his invention. Dr. Hulihen took this course and published in 1844, and we are bound to give him the credit of the union of the Screw and Forceps, until Dr. Dubs establishes by the most indubitable authority, (such as would be received in a court of justice,) a prior claim. We shall not further notice these articles than to publish from them the following letters.

"Mr. John Swain, Jr., long a respected resident of the city of Natchez, and now at the head of a well known and prosperous manufacturing establishment in New Orleans, writes to Dr. Charles H. Dubs, as follows:

[*Extract.*]

NEW ORLEANS, Nov. 7th, 1848.

"DEAR SIR: It is known to me that you were at work on the Forceps in question in the fall of 1842, or the spring of 1843. If it will be of any advantage to you to have my affidavit to this effect, please inform me. You can make what use of this letter you please. Respectfully, &c.

JOHN SWAIN, JR."

The following from a planter of Jefferson county, of the highest character for veracity and respectability, and well known in Natchez, corroborates the statement of Mr. J. Swain, Jr.

JEFFERSON Co., Miss., Aug. 30, 1849.

"DR. CHAS. H. DUBS, Natchez—SIR: In answer to your inquiry as to my recollection of the time of your first conversation with me on the subject of inventing your Screw Forceps, with a catch, so as to combine the action of the Screw and Forceps; to the best of my recollection it occurred in the fall of 1842, and sometime in the year 1843. I think in March, you told me you had commenced making them or had them completed, and in the fall of 1843, or spring of 1844, you were at my house and offered to extract roots of teeth for my wife and assured her that operating with your Screw Forceps would give but little pain. Yours, with respect,

HARRIS HILL."

[From the American Journal of Dental Science.]

TREATMENT OF DENTAL CARIES, WHEN THE CAVITY EXTENDS NEARLY TO THE NERVOUS PULP.

BY C. O. CONE, M. D., OF BALTIMORE.

THE dental, or nervous pulp of a tooth, in common with all vascular tissues, is liable to inflammation, modified, however, in character and result, not only by its anatomical position, but by the nature and cause of

the inflammation, as well as by the constitutional habit of the patient, and the pathological condition in which the pulp is found at the period when the cause becomes an irritant.

Although the irritation, and eventual inflammation of the nervous pulp of a tooth, produced by caries, may have the same final termination as might arise from a metallic plug, namely—suppuration of this tissue, and destruction of the vitality of the crown of the tooth; yet, the two differ not less in themselves, than in their pathological history and treatment.

The anatomical and pathological condition of the parts, in the one case and in the other, are very different, and hence, the greater liability of immediate general inflammation in the one than in the other. When caries has penetrated almost to the nervous pulp, or, even through the dentine to the pulp cavity, local inflammation more frequently supervenes, than would be the case if the same amount of irritation was communicated by a metallic plug. If the decay does not penetrate the pulp cavity, local and ossific inflammation is the result, but, should the decay advance rapidly, and even penetrate the pulp cavity, local inflammation is always the result for a time of more or less duration, according to circumstances. The decay has formed a passage for the escape of any discharge poured out from the inflamed surface of the irritated part, as well as a vacuum for the increased dimension of the nervous pulp from augmentation in the size of the capillary vessels of the same; and the inflammation is, by this provision, confined for a time to the pulp situated near the opening.

When a plug is demanded near the nervous pulp, this tissue is rendered more susceptible to morbid influence from this source, not only from the preparation of the cavity, preparatory to plugging, but the disease which made the demand for the operation, has increased the susceptibility of the organ to take on an inflammatory action. The plug is introduced, and the prolonged irritation to which the nervous pulp is subjected from the loss of dental substance, and the superiority of metal as a conducting medium, institutes at first slight inflammation in the nervous pulp: and the bony wall in which it is enclosed, being entire, any increase of size, although local at first, or any discharge from one part, finding no escape, presses equally on all parts: thus the inflammation becomes general, and the whole organ involved in disease, by operations, the design of which was their preservation—this is well shown in the following case:

During the month of March, 1843, Mr. S. of Mass.—about twenty-three years of age, sanguino-nervous temperament, with a denture full and regularly arranged, and holding a position between the first and

second class as respects their physical characteristics—requested me to examine the right first superior molar, which had recently admonished him of the presence of disease.

The tooth was marked by a broad decay on its labial surface, extending nearly to the neck of the same. In removing the decayed bone, preparatory to plugging, considerable pain was experienced, but no indication of an exposed nerve was manifest. The cavity was filled with gold and the patient dismissed.

The next day the patient returned with a request that I should again examine the tooth for another decay; stating the grounds of his suspicions to be sharp paroxysms of pain, which were felt on receiving cold or warm aliments, or when the tooth underwent any change of temperature. I assured him that no other decay existed in that tooth, and endeavored to explain to his mind, that the pain he experienced, was from the loss of tooth substance, and the superior readiness with which the metal employed transmitted changes of temperature over the sound portions of the tooth. With this explanation, and an expectation that the annoyance would gradually subside, he left.

After two days had elapsed, he again returned, complaining that the pain had increased both in duration and intensity. Local depletion, and sedatives were prescribed. The pain continued, and the plug was removed, but the inflammation had become general, and the pain constant and throbbing, with a slight elongation of the tooth from the peridental membrane becoming inflamed. The tooth was extracted and examined.

The peridental membrane showed marks of inflammation. On breaking open the tooth, a thin plate of bone separated the plug from the nervous pulp. This tissue was red, and the capillary vessels increased in size, but no pus could be detected with the eye.

Great difference subsists in the susceptibility to the morbid effects of a metallic plug when introduced in close proximity with the nervous pulp, varying with different classes of teeth, with different temperaments of individuals, and still more with the pathological condition of the organ at the time when the plug is introduced.

Patients whose temperaments approach the nervous, and whose teeth are highly organized, are much more likely to suffer from a close approximation of a plug to the nervous pulp of a tooth, than others whose temperaments are less irritable, and whose teeth are more dense, and the mineral ingredients better supplied.

When a tooth is attacked by caries, three vital actions are evinced: first, sensibility is increased; secondly, irritation is transmitted to the pulp; and, thirdly, this impression induces the pulp to renew its formative function, and thereby recede from the source of its annoyance, behind

a plate of secondary dentine, formed from its substance. It is upon the extent to which the third division, or protective process has advanced, and the vascularity of the same, together with the absence, or increase of sensibility of the organ from the extent and morbid influence of the decay, that the extent to which a tooth is made to suffer pain from the introduction of a metallic plug in a deep-seated caries depends.

Irritation to the nervous pulp of a tooth, from the loss of dentine being supplied by a metallic body, terminates in one of three ways, namely :

First, if the plug be small, the nervous pulp becomes inured to this source of irritation ; but if the metallic body is large and near the nervous pulp, and the progress of the decay such as to convert this tissue into secondary dentine, its density may be greatly increased, and its vitality, immediately beneath the plug and over the nervous pulp, lessened : thus the delicate tissue is protected from the irritating influence of the metal, as illustrated by the following case :

Mrs. M., of Mass., about twenty-five years of age, of a nervous-bilious temperament, and of general good health, with teeth of the second class, consulted me in relation to a decay on the anterior approximal surface of the left second inferior molar. The tooth had been plugged some three years previously, on its grinding surface, by a dentist of high eminence in Boston. The plug was very large, firmly packed, and the operation in all its relations well executed. The crown of the tooth was marked in several places by light yellow and opaque spots, indicating, at those points, the destruction of the nutritive vessels.

In preparing the cavity in the anterior approximal surface of the tooth, it was deemed best to unite the cavity on the grinding surface with the one which was being prepared, making of the two cavities a single excavation. In carrying this design into execution, the plug in the grinding surface of the crown was removed. The perpendicular walls of the cavity in the grinding surface of the tooth were sound, and free from any marks of decay, except where the disease had penetrated from the anterior approximal surface. The floor of the cavity was discolored, presenting a light purple complexion, and on applying an instrument to its centre, it glided from its surface as from a vitreous body, until it nearly reached the circumference of the cavity, where the complexion of the dentine faded, and became less dense but more sensitive.

I learned from the patient, that after the plug which I had just removed was first inserted, the tooth gave her considerable annoyance for some time, which at one period almost determined her to submit to its extraction, but that, at length, it gradually ceased to give her pain.

The explanation of this case is plain. The decay in the tooth had

produced irritation, which had stimulated the nervous pulp to renew its formative function, and thus a portion of this tissue was converted into secondary dentine previously to the introduction of the plug. The superiority of the metal as a conducting medium, instituted some inflammation, and the vascular canals which mark this dentine, became deeply injected, and afterwards calcified, thus increasing the density of the intervening osseous plate.

Secondly, the pulp may become calcified or converted into dentine, *after* the plug has been introduced, thus placing between it and the metal an osseous partition, sufficiently dense and thick, behind which to retire from the irritating presence of the foreign body. We have instances of this termination following irritation conveyed to the nervous pulp, when a portion of the dentine of a tooth has been lost by abrasion, or wearing of the teeth by mastication, or even after the use of the file. Indeed, almost every tooth that is extracted from the effects of caries, if the nervous pulp be examined, will be found more or less calcified opposite the decay.

Thirdly, if the irritation of a metallic plug be severe and active, or, even if the irritation be slight at first, yet from a faulty condition of the secretive vessels, or from irritability of the organ, dependent on the morbid effects of decay, or from constitutional tendency, it be long continued, it may terminate in suppurative inflammation. To prevent this last result following an operation, it becomes the duty of the dentist to seek for and employ such means as shall best secure the patient against such a result, when the case admonishes him to adopt a precautionary course.

When a carious tooth has been examined, and the decay has approached so near the nervous pulp as to exhibit secondary dentine, or the irritation of decay has rendered the tooth morbidly sensitive to changes of temperature, and an increased susceptibility to inflammatory action, some good non-conducting substance should be placed between the thin plate of bone covering the nervous pulp and the metallic plug, that the irritation dependent on the presence of the metal may be lessened.

Filamentous asbestos was introduced to the notice of the profession in 1840, by Dr. Solyman Brown, as a proper agent, from its well known qualities, to be employed in such cases.* Dr. L. Adams, of this city, has employed successfully, for some time, a layer of *very fine* textured cork. In 1848, the Drs. Nelson, of Albany, informed me by letter, that for some time they had employed, for the purpose now under discussion,

* American Journal of Dental Science, vol. i, p. 241.

a layer of oiled silk, with highly satisfactory results. Dr. J. H. Foster, (I think it was,) stated before the American Society of Dental Surgeons, that he had employed a thin layer of "Hill's stoppings" for this purpose, in one or more cases. Dr. C. A. Harris proposes the employment of *gutta percha*, in the form of a saturated solution, prepared with chloroform.

Each of these agents, possesses, under certain circumstances, peculiar advantages; but some are more exposed to practical objections than others, from their destructibility and want of pliability.

If the agent used cannot be pressed in all directions, so as to take the shape of the floor of the cavity which it protects, it attains only one end, corrects only one evil, and leaves another liable to occur at such parts of the cavity as the material may not come in contact with. I now refer to the possibility of a tooth decaying after it has been plugged in such a manner *as to exclude all external agents*—a possibility which I believe *may exist* where a *vacuum* is formed between the plug and the walls of the cavity, *in certain conditions of a tooth*. Moreover the bulk of material demanded, when some of these agents are used, precludes their employment in the anterior teeth, and even in the posterior teeth except in large cavities.

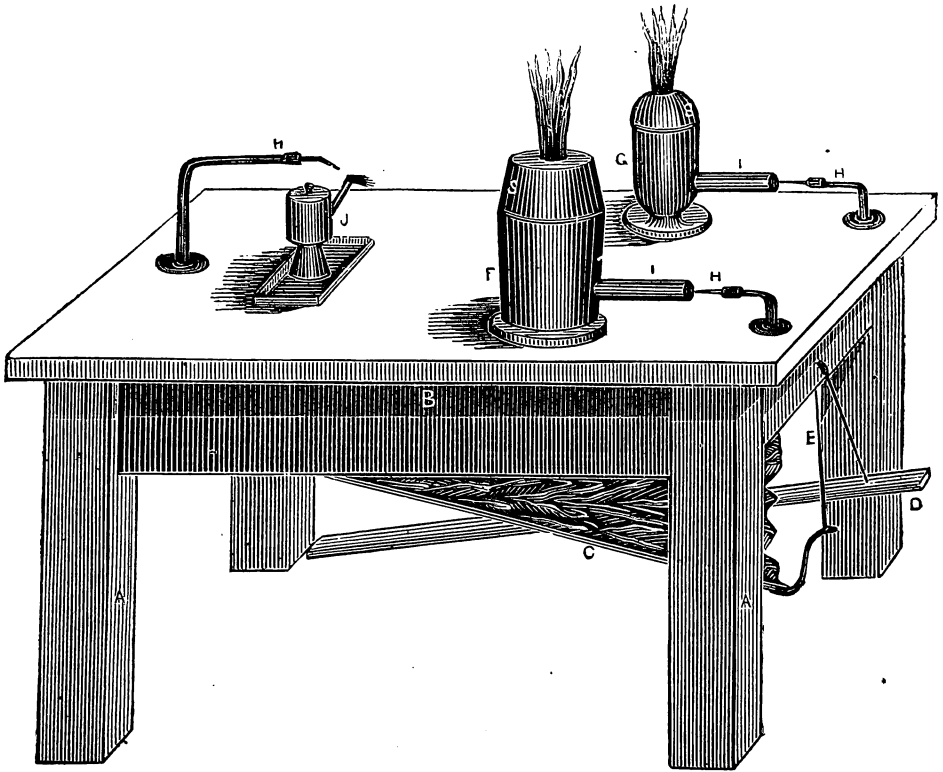
For the above reasons I have recently been employing, with the most gratifying success in all cases where this precautionary practice was apparent, oil silk in layers differing in thickness, according to the peculiarity and condition of the case; but that "Hill's stoppings," and preparations of *gutta percha*, may not be used with equal advantage and success, my practice and experience will not admit of my expressing an opinion. That these or similar agents, recommend themselves to the dental practitioner to be judiciously employed, in both relieving the sufferings of patients, dependent on dental operations, and in enhancing the success of the latter can no longer be a subject of debate in practice.

IMPROVED PORTABLE BLAST FURNACE.

THERE is a great diversity of opinion among dentists about the cheapest, quickest, and best method of melting the metals for casting their metallic models. While some prefer the alcoholic blow-pipe, others use the jewellers forge, and others again the common culinary furnace.

The Messrs. Barron and Brothers, at 252 Broadway, have constructed a very compact and simple portable furnace, which we should think would answer a good purpose for those dentists who make use of a blast to hasten the process of melting, and also for various other uses required by the dentist.

Fig. 1.



A writer in the Artisan says of this Furnace, "I saw a crucible filled with copper cuttings put into their No. 2 Furnace, and in ten minutes time it was melted and poured out. The time and fuel saved would very soon pay the cost of such a furnace, and such of our readers as operate in metals will find it to their own interest to make themselves acquainted with it." One of these Furnaces is now exhibiting at the fair at Castle Garden, where it attracts great attention.

"The cut Fig. 1, represents not only the furnace, but also an operating table to which is attached blow-pipes, bellows, &c.; it forms a convenient stand for the Furnace but is not necessarily connected with it.

Fig. 2.

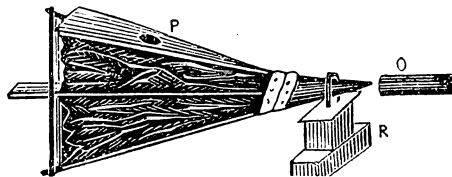


Fig. 2 represents a contrivance for supplying it with air by a small pair of bellows resting on a table. P is the bellows, R a block for the

support of the nose of the bellows, to keep it at a convenient height and distance with respect to the air pipe O. It will be seen that as the air comes out of the bellows in a condensed form, by the time it reaches O *it begins to expand*, and the heat it abstracts by that action is drawn from the tube O and not from the fire in the furnace, at the same time the warm and expanded state in which it reaches the fire, causes it to be equally diffused through the burning material, and produces throughout an effective intensity of heat.

Fig. 3.

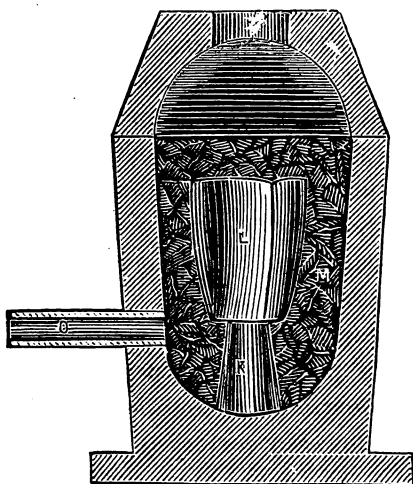


Fig. 3 exhibits a section of the Furnace, K is an inverted crucible on which another crucible L is placed, surrounded by fuel. O is the tube through which the air is supplied.

The operating table, Fig. 1, is not necessarily connected with the furnace—nevertheless its convenience deserves the consideration of the artisan. It is a table covered with a sheet-iron top, having holes through which are brought three blow pipes H H H supplied with air by the bellows C underneath, which is furnished with a wind chest whereby a steady stream of air is sustained. Before the blow-pipes you can place either furnaces F or G, or spirit lamp J, as may be required. The table and furnace and spirit lamp supply all that is needful to render the melting and soldering of metals *safe* as well as *easy*.

Messrs. Barron exhibit them in operation at their office, 252 Broadway—and to them we would refer silversmiths, jewellers, assayers, dentists, chemists, and all whom it may concern."

Since writing the above, the Fair of the American Institute has closed, and, as we learn, a medal was awarded to the Messrs. Barron for this furnace.

[From the Dental News Letter.]

TREATMENT OF DENTAL PULP PREPARATORY TO PLUGGING.

BY DR. J. D. WHITE, DENTIST.

MR. EDITOR :—There is no subject connected with the duties of the dental practitioner so important as the above, and none which the writer would approach with more deference to the opinions of others. That the subject is intricate all will agree, and that nothing has been settled upon, to direct the young practitioner in a way by which he may generally arrive at very satisfactory results, is also true. It is justly remarked by Mr. Tomes, of London, “that it is too much the practice, at the present day, to immediately remove an aching tooth. It would well repay any one who has time and opportunity, to devote their energies to the investigation of this subject,” and that “there are many teeth extracted which, with care, might be saved and rendered serviceable for years.” The same remarks will apply, to a great extent, with reference to the subject in this country. Professor Harris, of Baltimore, remarks, in his work on Dental Surgery, published some time ago, that “Indeed, I regard the propriety of plugging a bicuspid or molar, after the nerve has been exposed, as so extremely doubtful, that I think I hazard nothing in asserting, that however correct the preparatory treatment may have been, it will not be successful in more than about one case out of four.” And more recently he remarks, in an article on the treatment of the pulp, in the American Journal and Library of Dental Science, July 1st, 1849, that “even now, although he has performed the operation successfully in numerous instances, he feels considerable hesitancy with regard to the propriety of expressing his views upon the subject, nor would he at this time, had he not been frequently requested to do so.” This eminent author further remarks, “although he is disposed to think favorably of it at present, its ultimate value, to some extent, remains to be determined ;” but, “hereafter, he may furnish the readers of the Journal with the result of his observations and experience upon the subject.” This is the right spirit. Combined observation is the only sure way by which we can hope to arrive at correct conclusions in any difficult subject. If such had been the practice of those illustrious names who have gone from among us, and a correct record handed down to the rising generation of the profession, incalculable good might have been done for some of the ills that flesh is heir to, and an important work have been done, and fixed upon established principles, which, as yet, has scarcely been commenced. With regard to the propriety of

attempting to treat the dental pulp, as a general rule, when exposed by decay, there can be no doubt. Subject, however, to many considerations, the age of the patient, as to whether the roots of the teeth are fully formed, as well as the general health and tone of the teeth, gums, and the system generally. But experience can only be rendered advantageous, in this respect, by close observation, founded upon an extensive knowledge of physiological and pathological science. However uncertain the treatment may be, it is better to make the trial, for even if the tooth is lost, it is no more than would happen at any rate, as the tooth is useless with an exposed pulp, and better learn by losing hundreds, than to abandon for ever the attempt to preserve any. The writer has been making extensive experiments in the treatment of the exposed pulp, for twelve years, in every conceivable way, and has finally settled upon a general and very successful plan of practice, and which plan he gave in full in a thesis paper on the treatment of the dental pulp preparatory to plugging, for the degree of Doctor of Medicine in the Jefferson Medical College, in 1844, and which will form the basis of the present series of papers upon the above subject.

To better understand the subject, a few remarks, with reference to the division of toothache into different stages, and the diagnosis only, will not be out of place, as it is presumed that students become, at the present day, acquainted with the minute anatomy, structure, and physiology of the teeth, in the earliest part of their studies; those that have not, I would refer to *Tomes, Harris, Goodsir, and others*. There is no case of toothache that cannot be cured, and the tooth saved as a general rule, if there be enough of the dentine or body and root of the tooth remaining to receive a plug. Toothache may be divided into, and treated under three heads, viz: *True, False, and Sympathetic*, but may also be considered as only different stages of the same disease; because it is evident, that however remote or obscure the pain and pathological changes may be, if excited by a tooth, it is none the less toothache in some of its forms or stages.

1st. *True toothache* is acute inflammation of the dental pulp or nerve of the tooth only, and subject to the same changes as any other vascular tissues of the body, while running the different stages of inflammatory action, and the intensity and character of the pain depending somewhat upon, and marking the different pathological changes the pulp is undergoing at the time. *Its causes*—may be *constitutional, remote, approximate or local*. Constitutional, such as high sensibility and irritability of the nervous and vascular system. Remote, when other diseases are operating upon the system; such as tuberculous diseases of the nervous system, genital organs, attacks of cold, &c.; in short, any disease

which operates to promote irritability and a morbid condition of the system, will favor an attack of the toothache of any kind. Approximate and local ; such as one diseased tooth operating upon another, by *metastasis*, sympathy or close proximity ; decay of the dentine sufficiently to expose the pulp to air, and the irritating acids of the mouth, sudden and extreme changes of temperature, erosion, &c. ; dead dentine without much softening, acting as a foreign substance, as in cases of blackness of the tooth, substance commonly called black decay ; on the contact of any foreign substance or plugging material, while introducing a plug ; accumulation of serum, blood or pus beneath a metallic plug, or the decay of the tooth itself ; when inflammation attacks the pulp before the decay is removed sufficiently to allow of the escape of the accumulating fluids.

2d. *False toothache* is an inflammation of the alveolo-dental membranes and gums, and is commonly communicated from *within* the tooth to *without*, by continued inflammation and ulceration of the pulp through the foramin, at the end of the root ; hence it almost invariably commences at the apex of the fang. This membrane never continues acutely inflamed for any length of time, without destroying the vitality of the pulp, because the swelling of the coats of the blood vessels around the foramin, at the end of the root, cuts off a supply of blood to it, and the high grade of inflammation which exists in the pulp before it extends to any height externally, will cause it to slough. This is the point at which true alveolar abscess commences, and is never established without a loss of the dental pulp. Its causes, salivary calculi, (but, as observed above, generally diseases of the pulp,) which will often excite extensive inflammation of the gum and periosteal membranes, and sometimes to such an extent as to even inflame the pulp and cause it to slough ; a blow with any hard substance will often produce the same effect. Calomel is also a common cause of periosteal inflammation, especially when pushed to ptyalism, and acids of various kinds, administered during illness, and the mouth not washed carefully. But the most marked cases of the kind, and the most painful, but without the extreme sponginess which exists in severe ptyalism, that we have ever seen, has been during the development and eruption of the wisdom teeth, in patients of extreme irritability of the nervous and vascular system. And what is most curious, however loose, and however sensitive the teeth may become in ptyalism or teething, as soon as the irritating cause is removed the teeth return again to their natural and healthy condition, as a general rule, without a loss of the pulp.

3d. *Sympathetic toothache*.—This character of toothache may be regarded as only existing in sound teeth, or in teeth in which pain is experienced, but are not themselves the exciting cause of the pain, but

excited by some irritating cause along the course of the nerves of the same side of the face ; not as is supposed by some, caused by a diseased tooth of the same class on the opposite side. Opposite jaws may be painful from the same cause, but not opposite sides of the face, except it be from disease of the roots, or both of the nerves of the fifth pair—such as in rheumatism or irritability of the nerves of the head and face generally.

Its Causes.—Diseased neighboring teeth ; diseases of any character involving the fifth pair of nerves ; general irritation of the gums from salivary calculi ; partially necrosed roots ; uterine pregnancy ; development and eruption of the teeth ; exostosis of the roots and alveolar processes ; ossification of pulp, &c., &c.

Diagnosis of true toothache.—Actual contact with your instrument, after removing the decay of the tooth, and ocular demonstration, is almost the only positive signs of toothache ; still the following symptoms may sometimes lead to correct conclusions, viz : pain upon taking substances into the mouth above or below the common temperature of the blood. Yet, high sensibility of the tooth, when only slightly decayed, or where they are wholly sound, may give rise to great pain upon taking cold or sweet substances into the mouth, and sometimes cold is the only temporary remedy for inflamed pulp ; therefore, a toothache which is relieved by cold water, may be relied upon as arising from inflammation of an exposed pulp ; on the contrary, warm, when it produces any impression at all, it is to increase the pain, and that is frequently the first sign we have of the inflamed pulp, after a tooth has been plugged with slight exposure of the nerve. Tenderness to the tooth *inside* of the *cavity of decay*, and more or less prolonged pain after the instrument is removed ; while pain excited by sensibility of the bone, only lasts while the instrument is in actual contact with it. Again, a little experience will render the operator capable of judging whether the pain, excited by the contact of his instrument, is really from an exposed pulp or sensitive bone, by the peculiar thrill which it gives the patient.

These symptoms all become much exalted when acute inflammation attacks the pulp, together with intense pain accompanying. Intermitting pain is also a marked sign of true toothache, especially in the after part of the day, and forepart of the night—the febrile exacerbation—the determination of blood to the head and face, which gives the flushed cheek more or less to all in the evening, accounts for more pain being experienced at this time than any other in the twenty-four hours. Few have toothache in the morning ; hence, the promises which are made in the night, that the tooth shall be extracted in the morning, are, on account of

absence of pain at that time, so frequently broken by the sufferer. When these symptoms are present, and there is no seeming elongation of the tooth from the socket, and no undue sensation by sharply striking against the cutting edge or grinding surface of the tooth, with a hard instrument, it may be generally relied on as diagnostic of true tooth-ache.


FAIR OF THE AMERICAN INSTITUTE.

The annual fair of the American Institute was held at Castle Garden in the month of October, and the collection of articles of manufacture, there exhibited, was as large and attractive as on any former year since the organization of the institution. The articles exhibited in the dental line were less than usual, embracing some half a dozen cases, containing artificial teeth, single, and in blocks, a few of them mounted for actual service, but by far the greater part, merely for show. There were no teeth there which were considered worthy of special recommendation by the judges appointed to examine and report upon this branch of manufacture.

A dentist's press, intended for compressing gold plates into form, was the only article which the judges thought of sufficient importance to elicit a recommendation from them, and this they considered too small for the purpose intended. One constructed upon similar principles sufficiently large for all practical purposes, might prove to be a useful article—though it is doubtful whether it would supercede the drop or hammer.

There was also a case exhibited containing two beautiful chloroform inhalers, and one entire upper set of teeth, upon Mr. Rigg's principle of atmospheric pressure, which it was stated had been worn six years. These were manufactured by Mr. Barlow of this city, and showed a good degree of mechanical execution. The inhalers were of silver, and very beautiful.

A dentist's drill, invented by Mr. John Lewis, of Burlington, Vt., intended to drill in any direction, was exhibited by a city dentist. It was a beautiful piece of mechanism, but of very little service in the hands of the dentist. With the above exception, the dentist's cases contained nothing worthy of notice.—ED. RECORDER.

 Mr. Chevalier has perfected a Head Rest, that can in one minute, be firmly attached to any kind of chair, which for ease and comfort to the patient and operator, is not inferior to the best operating chairs. For the itinerator, it is invaluable.

NEW YORK DENTAL RECORDER.

NOVEMBER, 1849.

METALLIC CASTINGS.

In the last number of the Recorder we published the report of the committee appointed by the Society of Dental Surgeons of the State of New York, to examine and report upon the best materials for making dentist's metallic casts. That committee consisted of five members, who, after a laborious and protracted examination of all the most common metals and alloys used by dentists, finally agreed in recommending an alloy of zinc and tin as combining more useful properties for this purpose than any other. Since that time we have been politely furnished by one of the committee, (Dr. Geo. E. Hawes,) with the result of his experiments, which will be found both interesting and instructive to all practical dentists laboring in this department of the art.

One of the principal objects of this committee was to find a metal or alloy from which suitable castings could be made with the least possible shrinkage. To ascertain the different degrees which the various metals and alloys contracted while crystalizing and cooling, Dr. Hawes constructed a very simple and ingenious instrument, similar to Dr. Hare's pyrometer. From a pattern, one foot in length, bars of all the different metals which he wished to test were cast, being moulded with care by an experienced workman, in sand, and cast at the lowest degree of temperature at which the metal could be poured:

To test the hardness and tenacity of the different metals, Dr. Hawes made use of the jeweller's drop. After casting a bullet from each, it was placed in the drop, the weight raised to a certain height and then suffered to fall upon the bullet. The hardness of the metal would evidently be shown by the distance to which the bullet was flattened, while the fracture or cracks around the edge would indicate different degrees of tenacity.

Table of the Contraction of Metals.

1. Covill's Metal expands slightly,	-	1.64 inch per foot.
2. Jones' " contracts	- -	1.32 " "
3. Britannia, " " - - -	-	1.28 " "
4. Tin, " " - - -	-	1.24 " "
5. Type " " - - -	-	1.20 " "
6. Zinc 1 lb. to 6 oz. tin, contracts	-	1.16 " "
7. " 1 " to 1 " " " -	-	about 1.12 " "

8. Lead, contracts	-	-	-	-	about 1.10 or 7.64	"		
9. Iron,	"	-	-	-	-	" 1.8 or 9.128	"	
10. Zinc,	"	-	-	-	-	" 1.8 or 11.128	"	
11. Brass,	"	-	-	-	-	" 3.16	—	"

The following recipes were given to the committee during their investigation, and all of them contain some good properties. We give them with the results of Dr. Hawes' observations and experiments upon them :

Mr. S. Covill's recipe.

Tin,	-	-	-	-	-	-	-	5 parts,
Bismuth,	-	-	-	-	-	-	-	3 "
Lead,	-	-	-	-	-	-	-	2 "
Mercury,	-	-	-	-	-	-	-	1 "

This composition expands slightly, about 1.64 of an inch to a foot—is brittle and rather soft. It will probably require two dies, one to form the plate and the other to perfect it. A bullet placed under the weight in a jeweller's drop was broken to pieces.

Mr. Geo. Clay's recipe.

Tin,	-	-	-	-	-	-	-	3 ounces.
Antimony,	-	-	-	-	-	-	-	3 "
Zinc,	-	-	-	-	-	-	-	3 1-4 "
Bismuth,	-	-	-	-	-	-	-	1 1-2 "
Copper,	-	-	-	-	-	-	-	1 1-2 "

This composition makes a good die, which may be dipped into lead to form the matrice. It must be cast as soon as melted, or its proportions would be changed by the oxidization of some of the more fusible metals.

Fusible Metals.

Tin,	-	-	-	-	-	-	-	5 parts,
Bismuth,	-	-	-	-	-	-	-	3 "
Mercury,	-	-	-	-	-	-	-	1 "

From this metal the die is cast; and to form the matrice add 1 oz. of mercury to 4 lbs. of the above. The principal recommendation of this metal is the facility with which it may be used, after a little practice. To the wax impression add a border of the same material an inch and a half high, place it in the bottom of a basin and fill with cold water

very near to the top of the wax border. The melted metal may now be poured directly into the wax, and should be cooled as soon as possible by throwing the cold water immediately over it. The metal for the matrice should be melted in a strong wrought-iron dish and kept in it while striking up the plate to prevent it from cracking. A block of hard wood should also be placed over the die to strike upon, for the same reason. This metal would not resist the blow when placed in the drop, but flew into a thousand pieces. It fuses at about 140 deg. Fahrenheit.*

Zinc and Tin.

Many experiments were tried by Dr. Hawes with these two metals in different proportions, from 1 to 7 oz. of tin to a pound of zinc. With the increase of the tin the shrinkage becomes less, gradually approximating to that of pure tin, which contracts about one third as much as zinc, and fusing at a lower degree of temperature with every addition of tin. At the point of six or seven ounces of tin to a pound of zinc, the alloy became too soft for use. The committee finally concurred in recommending to dentists an alloy of three parts of zinc to one of tin, as, all things considered, the best adapted for metallic castings of any metal or composition with which they were acquainted.

INQUIRIES FROM A CORRESPONDENT.

—, Oct. 8, 1849.

DEAR SIR :—I wish to get hold of the best *Amalgam filling* in use. I have declined using it, till it seems to me resistance is no longer a virtue. I assist to depopulate jaws every day, which I sometimes think need not in *all cases* be done.

Permit me to inquire of you the composition and method of application of the amalgam you use ; as also such other information as my inquiry will legitimately suggest.(1)

* The following recipes for fusible metal are taken from the last number of the Dental News Letter.

Fusible Metal.—The following recipe has been sold to some of the dentists, and is said to be a valuable one. We paid five dollars for it, and thus give it to the whole profession.

NO. 1, OR HARD.					NO. 2, OR SOFT.				
Bismuth,	-	-	-	8 parts.	Bismuth,	-	-	-	8 1-2 parts.
Lead,	-	-	-	5 "	Lead,	-	-	-	5 1-4 "
Block Tin,	-	-	-	3 "	Block Tin,	-	-	-	3 1-4 "
Mercury,	-	-	-	2 "	Mercury,	-	-	-	2 3-8 "

No. 1 is for the male, No. 2, for the female cast. The lead should be melted first, then add the tin, and when they are well melted, pour the bismuth into the lead and tin. (The bismuth should be ready melted in another vessel) The mercury should be added slowly. None of the metals should be hotter than just sufficient to amalgamate.

This preparation is poured into the wax impression, which was previously hardened, thus saving the trouble of taking plaster models, and of moulding in sand.

Do you know the ingredients of *Evans's amalgam*? or, whether it is for sale in New York, and where. Also of any other similar stopping you may know about.(2)

Have you ever used an amalgam, or do you know of one, which will not change to a *dark color* in the mouth?(3)

Permit me also to inquire whether you use any preparation for destroying the sensibility of dental nerves, and what you consider best.(4)

Have you in use, or do you know of a safe, reliable, self-acting *blow-pipe*?(5)

Excuse me for the multiplicity of my inquiries. You will not fail to understand, that we who are in obscure distances, have not the benefits of personal consultation, either with any eminent dentist, or any considerable portion of the profession. Respectfully yours,

S. M. H.

The above is a fair sample of the letters which we are daily receiving from correspondents. Hardly a subscriber remits us two dollars (we wish there were more such), without asking some questions relating to surgical or mechanical dentistry. We do not mention this fact to deter any one from so doing, as it always gives us pleasure to answer such communications according to the best of our ability; but when the same questions are put by many persons, we must believe they are of general interest, and therefore choose to reply to them through the pages of the Recorder. Within the last few weeks we have received many letters, making inquiries concerning the various kinds of amalgam in use, and which have been recommended by different writers, especially that recently introduced by Mr. Evans.

Before answering our correspondents first inquiry, we wish to state in what cases and under what circumstances we deem it good practice to use amalgam filling, and we will begin by stating in what cases, in our opinion, it never should be used.

We do not deem it good practice ever to fill teeth in the front part of the mouth, exposed to view, with amalgam, as the material, even when first introduced, imparts a dark shade to the tooth, like a tin filling, and in most cases, after a few months becomes quite black. We seldom put it in teeth after the pulp has been destroyed. In such teeth it always becomes much darker than in living teeth, often staining the whole remaining portion of the tooth as black as ink. It is also more difficult to remove from the tooth, an operation which sometimes becomes necessary when the tooth causes inflammation in the alveo-dental membranes. There is also a set of dentists who are such astute pathologists, that they never look beyond an amalgam filling for the cause of alveolar abscess, fetid breath, profuse salivation, or any other evil to which the mouths of their patients are subject. We do not care to give such men an opportunity to abuse us or fool the public. If amalgam fillings will

produce inflammation, or a mercurial breath, or excessive flow of saliva, when put in teeth with living healthy nerves and vessels, then let it be condemned and abandoned: we do not believe that it ever did or ever will produce any such effect under these circumstances. We never under any circumstances, use amalgam for filling teeth without the knowledge of the patient, and if he is unacquainted with the nature of the material, and the prejudices which exist in the minds of some against its use, we always enlighten him upon this subject, giving the highest authority which we know against it.

In all cases of decayed teeth in the back part of the mouth, where the cavity is so situated that there is great uncertainty about our ability to fill every part of it securely with gold, we prefer amalgam, and its best recommendation is, that we have seen it in such cases after it had preserved the teeth longer than we ever knew teeth to be preserved, under similar circumstances, by the use of gold or any other material. Teeth which have been badly worn by clasps are generally either molars or bicuspid, if out of sight, and if the decay be extensive and superficial, we fill them with amalgam. Fangs, also, which are too much decayed to be filled, around a tube, with gold, we fill with amalgam, first having inserted into the upper and round part, a platina tube. When prepared in this way, they will often sustain artificial crowns for years. These are the principal cases in which we use amalgam, and in such cases we have never known or heard of any bad effects being produced by it.

(1). The amalgam which we use is composed of the filings of pure silver and precipitated silver in about equal proportions, by weight, and chemically pure mercury. We mix them in a small wedgwood mortar by tritulating them until the materials are thoroughly combined, when we throw on water, and wash the amalgam until the water comes off clean. The whole is then put in a chamois skin, and the excess of mercury compressed from it, leaving the mass a dry plastic paste. It should then be immediately inserted in the cavity which must have been previously prepared and dried with the same care, as if for a gold filling. A few days after, when the paste has had sufficient time to harden, the filling and surrounding portions of the tooth should be burnished and polished.

(2). If our correspondent had been an earlier subscriber to the Recorder, he would have seen an account of Mr. Evans' amalgam, and also of an amalgam of palladium recommended by Professor Tomes. He would also have learned something of "Hill's Stopping," which is highly recommended by some. We refer him to the back numbers of the Dental Recorder for all the information that we possess upon these

substances, adding that all the teeth in which we have used either Evans' amalgam or Hill's stopping, and had an opportunity to examine since the operation, were in good condition when last seen. We can recommend both if used with judgment and discrimination.

(3). Mr. Evans asserts that his amalgam does not change color in the mouth, and as far as we can judge from those fillings which we have seen, after standing a few months, it does not, neither does Hill's stopping.

(4). Within the last few years much has been said about painless dentistry, and while some have thought it analagous to humbug dentistry, others have been experimenting, with very considerable success, to find a material that would deaden the sensibility of dentine without destroying the vitality of the pulp. Chloride of zinc has been used by many, and in some cases it is an excellent article; but arsenic in very minute quantities has been relied upon most and used with the best success. We have been successful in many cases with the following, R. Tannin, 3 gr., Narcotine, 2 gr., Arsenic, 1-2 gr., but even this small proportion of arsenic must be used with great care. We copy the following from a letter from one of our correspondents: "Dr. J. F. Flag of Boston, has written me that he uses cotton cambric that has been dipped in a highly attenuated solution of arsenic, and then dried, cut into pieces of convenient size and laid in the cavities of young patients teeth, to remove the very acute sensitiveness of the bone, with great success.

(5). Upon the subject of blow-pipes much might be written, as there are more in use, than any one person has ever tested so thoroughly as to give an intelligent opinion which is best. We have never used any but the mouth blow-pipe, a pipe attached to a pair of bellows operated by the foot, and the alcoholic blow-pipe. The mouth blow-pipe is undoubtedly the best for one who has a chest and lungs large and powerful enough to operate it without injuring himself, but where this is not the case, with a little practice any case of artificial teeth may be soldered with either of the others. The apparatus of the Messrs. Barron is a very good one for both melting and soldering.

We can fully sympathize with our correspondent, who is situated in a remote village in New England, having spent several of the first years of our practice in a similar situation, where we were thankful for an opportunity to communicate with any one who had seen more practice than ourself, and was willing to give us the benefit of his experience. We have never forgotten those few years, but have ever since kept an open office, when not otherwise engaged, for all dentists who had any desire to learn our method of operating. With our professional brethren we have had no professional secrets.

NEW YORK DENTAL RECORDER.

Devoted to the Theory and Practice of
SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.

Vol. IV.

DECEMBER, 1849.

No. 3.

DRILLING DEAD TEETH.

BY A. W. TODD.

MR. EDITOR:—In your last Recorder, page 5, there is detailed the process of drilling dead teeth and filling them; also drilling such as have their nerves exposed, and drilling and filling them. Now as the Recorder is intended as a mutual help to all, and you desire all to throw in their mite, permit me to come in by way of commendation to the above intimations, and to make a few suggestions and assertions.

Before filling any tooth that is to be drilled, drill it as described and then cut off a short piece of wire, of suitable size, and place it in the hole so as to be withdrawn after the tooth is filled, thus insuring an opening. Instead of cutting a piece of plate to protect the nerve cavity, simply make a tolerably hard ball of the metal, (gold or tin foil), and place over the place as a cap. This, if made large enough, and pressed down against the bottom and sides, will lie much better to its place than the cap described. This has been my practice a long time, and especially where nerves are slightly exposed, though always with misgivings, yet I find it does better, on an average, than killing the nerve, as that is attended with more or less pain and soreness. I only kill nerves where there is no getting round it—and as follows: make the nerve bare in as easy a way as possible, and then dry the cavity, and insert a small ball of the arsenious preparation, made of three parts of morphine to one of arsenic, and just enough honey and kreosote to form a stiff paste, and seal it up with wax, from four to twenty-four hours, according to circumstances, as it will not do to remain long in front teeth of young persons.* At the expiration of the time allotted, I thoroughly cleanse the cavity of decay and as much nerve as possible, then fill it as perfectly as though it had not been killed, not being particular to fill the root or roots, in fact I had rather not, for most invariably the upper portion of the nerve or pulp is still alive to some extent, and if pressed upon of course would be attended with trouble.

* See Harris's Principles and Practice of Dental Surgery.

I am anxious for all to understand that according to my experience, it is the only way to insure any thing like certain success to kill and fill as soon as possible, that is, not to let the air act upon the internal, or dead nerve, any longer than can be avoided, as it seems to have some very bad influence in a few hours, such as putrefaction, causing gas, and so on, at once. But if the nerve is not rendered putrid it seems to lie dormant, at least for a long time. This has been my practice for more than seven years, and I have the pleasure to say that I esteem it most highly, as it has succeeded far beyond my expectations. Dr. Putnam is perfectly right in reference to old dead teeth, as this putrefaction has already taken place and the gas formed must have an outlet or mischief is sure to ensue. There is only one case in which I could think of drilling a fresh killed tooth, and that would be where the patient lived a great way in the country. I very frequently drill aching teeth instead of extracting them, especially front ones; and sometimes teeth that have been badly filled and are aching, to let out the pus. As soon as they get well I fill, or refill them, remembering to have the short wire to insure an opening.

I think it much the best to avoid, if possible, any opening to the internal portion of any tooth for it is as contrary to nature, so far as the tooth is concerned, as to penetrate to or into the brain and let it remain open. So far as the filling is concerned in molars, I always, unless in sight, fill with tin or amalgam as either if well done will last as long as any dead tooth, and that is all that could be desired—all the bad qualities related about these articles would be the same with gold if it was triflingly done—so far as Hill's Stopping is concerned, I have not had the pleasure of seeing or testing it yet. No doubt it is good.

In reference to filling cavities where the nerve is exposed I think it best to let the filling touch the nerve, (not press it) as by that means the air is excluded, which is of much more importance than it would seem at first. We tie up a wound to heal it, that is, exclude the air. But I do not mean that this is to make a final healing, but rather to act as a shield or protector to guard against inflammation, which it may do for a great while, though in every such case the death of the nerve, and finally the tooth, may be looked for with certainty, but then the tooth is no worse off, probably, than it would have been if killed and drilled—it may then be drilled and refilled and made to last as long as it would if it had been done at first. Teeth are very precious organs and the use of them even for a few years is of vital importance, so much so, that every dentist should, by all the ties of humanity, make the very best possible use of each case. I have seen many teeth extracted, to supply their places

with plate ones, that might have been filled and made to last much longer than those supplied—such was the imperfect manner in which the work was done, to say nothing about the great amount of trouble given by them while they lasted. There is nothing about the practice of dentistry of so little use, or calculated to give so much dissatisfaction, as plate teeth, unless they are set in the most perfect manner, and even then they are so much inferior to natural ones that they should by all means be the very last resort.

I merely make the above remarks hoping to check the crimson tide that is too often flowing, from the *habit* which some dentists have of extracting all troublesome teeth, and to keep active the generous impulses of justice and benevolence, so that all of us may be able to sympathize with our patients and render to each the most suitable practice. I desire to be plain, charitable and reasonable on the subject, feeling that carelessness and indifference are inexcusable, and that the business of the dentist, like that of the surgeon, is to heal when possible, and not to extirpate. Good dentistry contributes as much comfort to those who share it, no matter who, as any one thing extant, and *visè versa*.

Montgomery, Ala., Oct, 22, 1849.

P. S. In reference to springing of plates, it may be that some dentists have never tried (after trimming the plaster to a proper thickness) the plan of wrapping it all, in every possible way, with common binding wire, so that if the plaster cracks it is made to remain in its place, and at the same time prevents, at least to a great extent, the gold from springing. All this wrapping should be done, and the whole made fast on the charcoal, before the joints are filled with the gold foil (if necessary), or the solder is put on, which may be done very well through the little grates. I for one very much wish that the experiments made in your society, in reference to casts, may be made public in your next number, or as soon as convenient, at least as many as are likely to be useful.—See 15th and 16th pages of Oct. Recorder.

A. W. T.

PARIS, SEPT. 20th, 1849.

To the Editor of the Dental Recorder,

DEAR SIR:

In compliance with a promise given to my professional brethren I should like to avail myself of the medium of your "Dental Recorder," to give my present views in regard to the preparation of tin and cadmium, an account of which I published in the London Lancet and the London Medical Gazette.

It appears to have been inferred from my remarks in these journals, that I am an advocate of the practice of filling teeth with amalgams. This is an honor to which I have not the slightest claim whatever, and I must, therefore, leave it entirely to the enjoyment of those who are justly entitled to it. The fact is well known to my friends on this side of the Atlantic, as well as in America, that I have always been strongly opposed to the use of any other material for filling teeth than gold, and in my own practice, I have never made use of any other. My predominant opinion has always been decidedly in favor of gold, notwithstanding I have, in common with others, experimented with a view, on my part, of testing the merits of substances designed to be used in a plastic state. From my experiments with the preparation alluded to, I discovered that it had qualities which the other amalgams did not possess. It preserves its color better than the other mercurial preparations with which I am acquainted. It also has the advantage of becoming a tough, ductile substance, susceptible of being cut or burnished like a piece of tin. In addition, the cadmium seems to completely absorb the mercury in the process of chrysalization. From these circumstances it was thought to possess important advantages over any of the substances hitherto employed.

There is in my opinion a very great objection to all the combined metals, arising from the fact that they are all promoters of galvanic action. This objection is a very serious one in a substance employed for the purpose of filling teeth. Upon removing some of this filling which appeared perfectly light, and which was unchanged in its color upon the exterior surface, I have found that beneath the metal a deep yellow hue had made its appearance, penetrating for some distance into the bone of the tooth. This phenomenon does not present itself until after the lapse of considerable time, and appears much more striking in some cases than in others. Whether this effect is to be ascribed to galvanic agency yet remains to be determined. Mr. Faraday observes (see Turner's Chemistry, sixth American Edition, page 399), that an alloy of steel with one hundredth part of its weight of platina, dissolves with effervescence in diluted sulphuric acid, so weak as scarcely to act on common steel, a fact which he accounts for by ascribing it to the steel being rendered positive by the presence of the platina.

I have watched the effects produced by the application of this preparation, and the result of my observation has been such as I have stated above. I am now engaged in investigating the subject of the different amalgams that have been in use, in reference to their influence upon the general health, and I hope soon to be able to give the opinion of some

of the highest medical authorities in Europe, upon a question which has elicited so much discussion and which in reality is one of the greatest importance.

In giving publicity to this preparation, the object was not simply to make known the result of my experiments, but also to invite the attention of the profession to a subject so peculiarly important as that of discovering a material to be used *in those cases in which the circumstances might seem to indicate the expediency of employing a soft filling*, and to take the place of the compositions deemed objectionable, already in use. Experience, the great test in such matters, has furnished a result not so favorable as was anticipated by many members of the profession, who had expressed their decided approbation of this preparation, and who seemed perfectly confident that it was destined to fill a great desideratum which had so long been felt.

Whatever may be the hopes of others in regard to this preparation, I have *never* considered it as a substitute for gold—I have regarded it as a mere expedient, to be resorted to only in *peculiar* cases.

In regard to its influence upon the general health, in the opinion of those whose authority is entitled to weight, it is not injurious in this respect. *I cannot, however, refrain from stating it as my deliberate opinion, that all operations in which amalgams are employed, are merely temporary in their nature, and that any tooth that can be filled in a PROPER manner with gold, can be effectually and permanently saved only by this means.* This is the opinion I have always entertained, and I adhere to it at the present moment with *undiminished confidence*.

Very Respectfully,

15 Rue de la Paix.

THOS. W. EVANS.

Remarks upon the above.

From the general tenor of the above communication, we should judge that Mr. Evans had begun to tremble lest his reputation as a dentist should be injured in consequence of his tampering with amalgam, and he be classed among the "*Amalgam Dentists.*" The following extract from the American Journal of Dental Surgery is in the same vein, and a friend has suggested to us that this article, published in the July number of the Journal, caused the above letter to be written by Mr. Evans for publication in the American dental periodicals:—

"As Mr. Evans has been so kind as to send us some of his new amalgam, with a request that we would try it and favor him with our opinion with regard to its value, it will give us pleasure to submit it to such tests as we may deem necessary to enable us to form a correct judgment in relation to its fitness for filling teeth. In the mean time, we would caution him against experimenting with it to an extent that would be likely

to injure the reputation he has it in his power to form in the great French metropolis—the field which he has selected for his professional labor.

“Mr. Evans is a young practitioner of high promise, and as he says he has never seen a tooth which could not be filled with gold that could be preserved—and believing, from the evidences of his skill we have seen, that he can fill any such tooth with gold—we should regret to have him throw away the reputation he has acquired for excellence in this operation, by tampering too extensively with an article—to say the most of it—of doubtful value. In the hands of skillful practitioners, we believe no better material for filling the teeth than gold can be had; and if the object of this operation can be fully accomplished with this metal, why seek a substitute? If a tooth is worth filling at all, it is worth filling with the best material, and in the very best manner. If it can be ascertained that Mr. Evans' new amalgam is as good as gold, we shall not object to its use. On the contrary, we shall hail it as one of the most important discoveries that has ever been made in dental surgery and the author of it as one of the greatest benefactors to mankind. We sincerely hope it may prove to be so, as the operation of filling teeth, the proper performance of which at present requires so much labor and nice manipulation, would then be rendered very simple and easy.”

Now the great fallacy which the editor of the American Journal, in common with the leading members of the American Society, seems to labor under, is in supposing that the use of amalgam is incompatible with good operations with gold. These men have tried hard to brand all who use amalgam with a want of professional honesty, and to class them with the “amalgam dentists,” by which is generally meant a class of dentists, mostly itinerants, who use amalgam in ordinary cavities because they lack skill to put in permanent gold fillings. Those who have had an opportunity to witness Mr. Evans' operations can bear witness to his skill in the use of gold, and we can point to many others using amalgam whose gold fillings cannot be surpassed by any of those who have taken so much pains, not only to abuse amalgam, but to degrade and vilify all who use it. It would be as reasonable and just to accuse one who used tin occasionally, of being an advocate of tin fillings, as to accuse Mr. Evans of being an advocate of amalgam fillings. If this phrase, “an advocate of the use of amalgam for filling teeth,” means to advocate its use in general practice, as gold has heretofore been used, by good operators, no one will be so silly as to attribute such views to Mr. Evans; but if it means “an advocate for the use of amalgam for filling teeth *in those cases in which the circumstances might seem to indicate the expediency of employing a soft filling*,” we cannot see that either Mr. Evans or any other person ought to suffer for being such “an advocate.”

The fact is, that skillful, unprejudiced dentists, and many of their intelligent patients, have learned to discriminate those teeth in which gold fillings, of the very best quality, are vastly inferior to amalgam, and we

doubt not Mr. Evans has seen many such cases. While he confines his practice with amalgam to such teeth he need not fear that his would-be friends on this side the Atlantic can find it in their power to injure him.
—ED. RECORDER.

DRILLING THE NERVE CAVITY.

Mr. Editor :—I was struck with the "Important Improvement in Dentistry," announced in your last number—a decided *hit*. The author thinks it a great misfortune to suffering humanity that "his theory is not generally known;" and, that Dr. Cone, among others, owes something of his professional short-comings to his ignorance of the "grand desideratum." But I have a little more charity for Dr. Cone, in supposing that he was *not* ignorant of the fact that Mr. Fox recommended "the drilling of a hole at the neck of the tooth into the cavity, in order to make an opening by which the matter might escape"—at least thirty-five years ago. (See Phil. Ed. p. 163.)

And again, the same method of filling teeth after the destruction of their pulps, as *discovered* by Mr. Putnam, was described by Mr. Grimes, of London, in 1842; (Den. Jour., v. 3, p. 281,) and had been practiced many years before by Prof. Harris, of Baltimore, with the *real improvement* added, of a hollow gold screw fixed into the vent-hole, to prevent the dentine from decay.

The same *principle, the tubing of a plug*, is well known to all, and has been practiced by most intelligent dentists. It was practiced and recommended by L. S. Parmly, twenty years ago.

Mr. Putnam is truly "voluminous in extracts," (all from the same work, however, with one exception,) to *prove* what? *that inflammation and gum boils are the results of teeth having lost their vitality!* But if he had been a *little* more voluminous, and referred back to the *first* volume of the *Recorder*, page 122, he would have found his "Improvement" described in full, (in language much more agreeable to Murray than his own,) by Dr. FLAGG, of Boston*. It is accompanied by a drawing of an excellent drill, with a lip-guard, which he invented for the purpose.

This article was a *re-published* one, two years ago; I don't know when it was originally written, but he had *then* practiced the application

* It is due to Mr. Putnam to state, that after his communication was received, we forwarded to him a copy of the *Recorder* containing Dr. Flagg's article, which, until then he had not seen. Afterwards, Mr. P. wrote us that we might suppress the article, or publish it as we thought best. Thinking it might induce some other dentist to give his experience in this mode of operating, we published it.—ED. RECORDER.

of arsenic to exposed pulps, and drilling the necks of such teeth, from beneath the gum to the pulp-cavity, "for more than two years."

I much prefer Dr. Flagg's expression of pathological ideas, which embrace all of Mr. Putnam's *conceptions*—excepting perhaps, "Hill's Stopping," which at that time wasn't conceived by anybody, and his extravagant anticipations about "two of the greatest blessings." Dr. F.'s idea of the use of the vent-hole was to drain off the "extravasated blood, or watery secretion," which would naturally accumulate in the roots of such teeth, while Mr. Putnam expects nothing to escape *his* vent-hole but gaseous or explosive matter." *In this* we must certainly award him the credit of originality.

Very respectfully Yours,

C. F. CUSHMAN.

LETTER FROM J. P. KNIGHT.

Webster, Oct. 15, 1849.

C. C. ALLEN: *Dear Sir*:—In your last *Recorder* I saw a communication from C. S. Putnam, Macon, Ga., on an important improvement, in dentistry. Now what I wish to communicate, is my experience, which has been for the last twenty-two months, a longer time than that given by C. S. Putnam. In very many cases I have thus far been successful, while, in others, I have had the teeth to extract, the pain being most severe. The first case was a large under molar, the tooth constitutionally good, with the exception of a small carious place which had reached the nerve cavity. The nerve had been destroyed by arsenous preparation, and the tooth filled with tin foil. I did not at the time make a communication with the nerve under the gum, but told him if it should pain him, an operation of that kind would, I thought, give him relief within a short time. I do not think it was more than four weeks before he came to me again with the same tooth, which had caused him much severe pain. I made a communication with the nerve cavity under the gum, which was followed by a discharge of *pus*, which gave immediate relief. I did not see him again for about three months, he being in Boston, when he came to my office with severe pain in that tooth, which I extracted. I have also had to extract within a short time, where the communication was made with the nerve at the time of filling the tooth.

I think the improvement a good one; but far from succeeding in all cases.

Yours, with respect,

J. P. KNIGHT, Dentist.

DUBS' PATENT FORCEPS.

To the Editor of the Dental Recorder :

DEAR SIR—The imputation contained in a communication in the last number of the Recorder, over the signature of "A Mississippian," as, also in other publications, that I am infringing an alleged patent right, of Dr. C. H. Dubs, requires—in order to maintain my name and honor intact—a refutation, which with the privilege of a space in the columns of your valuable Journal, I hope to make complete.

The subject is undoubtedly an insipid and profitless one to your readers, but I ask their indulgence for this time, in the hope that it will put an end to the discussion about the Screw Forceps, at least, so far as I am concerned. That I was the first that applied the ratchet to the screw forceps, I will soon proceed to prove, and had I thought that I could have immortalized myself so cheap, I would have secured a Patent, and there would have been no cause for controversy. But this improvement, which Dr. D. considers of such vast importance, and spent so many years in perfecting, (so says a Mississippian,) I perfected in less than one day, and when it was born, I found it was no prodigy.

In December, 1840, passing through Wheeling, on my way to New Orleans, I called on Dr. Hullihen, who, amongst other instruments, showed me a forceps with a screw between the beaks, which he had himself made from an old forceps, and substantially the same as that now in use, and on which I made the improvement, he expressed a wish that I would make some, which I did shortly after my return home, in the spring of 1841, and in compliment to the inventor, named them Hullihen's Screw Forceps; so much for the paternity of the original instrument.

In the summer of 1846, I received a letter from Dr. Dubs, dated Natchez, July 8th, containing an order in the following words: "Two pairs right and left forceps, of the size and shape of pattern, and the other pairs of the same shape, but to be much slimmer and narrower, to close at the beak or bill, so as to enable the operator to extract roots and small fragments of decayed roots, &c. You will also make me a pair of Dr. Hullihen's Screw Forceps, of the extra first quality." In his next letter, dated February 4th, 1847, after describing some other instruments, he adds: "and one extra screw for the Hullihen Forceps you sent me," continuing, he says, "I find adding a small spiral spring* under the screw, is of much advantage." Does this look as if Dr. Dubs had his Compound Union Screw Forceps, to extract roots with from ladies and gentlemen in 1845? Or that I may have obtained

* This spring was in Hullihen's original screw forceps, and left out, as useless.

the information of the way in which a screw forceps was made, from Dr. Dubs, through Mr. Hill; or, that I had no such instrument at that time, as asserted by "A Mississippian?" No; but it proves that he had nothing, that he deemed suitable for extracting roots of teeth in 1846, hence the order for the right and left stump forceps, and the order for an extra screw; and, the remark that the addition of a spiral spring under the screw, as he found by experience, is another proof that he had then nothing better for extracting roots.

The next order that I received from Dr. D., dated Natchez, June 18th, 1847, was for one forceps like the screw forceps, with the exception of the tube and screw. Now this begins to look like making an improvement, but I was then making the instrument with a ratchet, and an ivory revolving head at the extremity of the handles, to facilitate the rotation of the forceps in the hand, when screwing into a root. I had some of those forceps, with others, at the Boston Fair, of September, 1847.

In August, 1848, I was called upon by Mr. Samuel Cockrell of Natchez, who handed me one of the identical screw forceps that I had sent Dr. D., but with the improvement of the ratchet, and constructed somewhat different from mine, in having a trigger, (like that of a spring lancet,) extending over the joint of the forceps nearly to the rivet, whereas mine have a small catch and spring, all within the beak of the forceps, rendering them perfectly smooth and safe, there being no danger of tearing the lips, as with the other. Accompanying these forceps, was a letter from Dr. Dubs, offering to sell me the right to make and sell these forceps, which I had then been making some fifteen or eighteen months. I immediately replied to him that his friend, Mr. Cockrell, (to whom I had shown six or eight of my improved forceps,) could inform him that I had anticipated him in this improvement, and, of course, would continue to make and sell them; thanking him, nevertheless, for the preference he intended to give me over other instrument makers, in making me the first offer of his patent. In answer to this I received a threat to be dealt with to the utmost severity of the law, for infringing his Patent Right.

In conclusion, those threats of prosecution can have no other effect, than of deterring, for a time, the timid from making, or using this instrument, without the permission of the alleged patentee. But as I assured Dr. D. in reply to his threat of October 31st, 1848, so I now assure the dental profession, that I will continue to make and sell *Hullihen's Screw Forceps*, with *Chevalier's improvement*, as advertised in my catalogues, (which are not "an imperfect imitation of Dr. Dubs' instrument," as the correspondent of the Natchez Courier styles them—he probably trans-

posed the nouns by mistake,) until restrained by due course of law, which can never be, if the 6th and 15th sections of the Patent Laws of 1836, are plain English.

JOHN D. CHEVALIER.

From the Dental News Letter.

FILLING TEETH.

Having seen several articles in the News Letter on the filling of teeth, describing the operation differently from what I perform it, I take the liberty of detailing the method which I have practiced for six years past.

The cavity I prefer to have of a cylindrical shape, the *depth* a little *greater* than the *diameter*. Of course, it is impossible, in most instances, to obtain this shape, but that is the standard to which I approximate as nearly as practicable. The *opening* to the cavity should be as large as it is within; and I prefer that it should be larger, rather than smaller. When the diameter of the orifice is *less* than the cavity within, it is extremely difficult to fill it *perfectly solid*; there will almost always be a slight space between the gold and the walls of the cavity, and should this be the case, the tooth will eventually become discolored, and decay. On the other hand, even if the opening is considerably larger than the interior, a plug may be inserted in the manner I am about to describe, and if well done, cannot be otherwise than perfectly *solid*, and perfectly *full*. The slight *roughness* of the tooth will prevent its coming out.

When the cavity is properly prepared to receive the gold, roll up a leaf of foil, (or fold it flat,) and cut it into pieces of different lengths and sizes; then take a piece which is somewhat *longer* than the depth of the cavity, and place it therein, having one end on the bottom, and the other projecting somewhat beyond its orifice; then press it against the *sides* of the cavity, and make it as *solid* as possible. Proceed in this way until the cavity is *full*, so that no more foil can be introduced; then, with a plugger considerably less in diameter than the cavity, press the projecting gold down against that within the cavity, as compactly as possible; then with a file or other instrument, remove all the gold beyond the edge of the cavity; then polish and burnish the surface of the filling as highly as practicable. If the *depth* of the cavity is about *double* its *diameter*, I make *two* layers of gold, in the same manner as above described.* A tooth filled in this manner will not lose its filling piecemeal; if any comes out, it all will, at once, and the patient is immediately warned to consult his dentist. But it is rarely the case that this will happen. One very great advantage of this method is, that the operator may be sure of having the cavity *full* and *solid*. Many dentists too often find on press-

* For a description of this method of filling teeth, see New York Dental Recorder, Vol. I., p. 20.—ED. RECORDER.

ing in the last part of the filling, that the cavity *is not quite full*, and that there is not room enough remaining to put in any more, but by proceeding in the above manner, they may be sure of invariable success.

H. S. CHASE, M. D.

Woodstock, Vermont.

From the Dental News Letter.

FLAGG'S LATERAL CAVITY PLATES.

MESSRS. JONES, WHITE & Co.

Gentlemen,—The operation for adjusting an entire upper set of teeth to the mouth, is one of great delicacy, and often presents difficulties the most experienced in our art are not altogether prepared to meet. I have reference to those cases that depend entirely upon atmospheric pressure for their adhesion.

The purpose of this communication is to recommend to the profession a plan which I have recently introduced in my practice, with the most satisfactory results; and the purpose of the invention is the more perfectly to secure to the upper jaw artificial teeth, when recourse is had to atmospheric pressure; to prevent the rocking or canting of such teeth, when antagonized by the under teeth in mastication, and to restore the upper jaw to its original fulness, so desirable to retain a natural tone of voice.

I am aware that "cavity suction plates" have been more or less used for many years, of various construction, with different degrees of success; and that one has more recently obtained letters patent, under the name of "central cavity plates," for the greater adhesion to the roof of the mouth; but these have required that much metallic substance should be carried over the entire bony palate; conflicting with the sense of taste, and having its *chamber* so located as to cause a protuberance in the mouth, entirely at variance with all anatomical formation; inducing changes from the natural tone of voice, difficulty of articulation, and other serious complaints from many who have resorted to them.

The nature of my invention consists in so forming the plate, upon which the artificial teeth are secured, as to perfectly fit the jaw in all its parts, as at present ordinarily practiced, except in that portion of the dental ridge immediately behind, and in line with the grinding or molar teeth. At this point I recommend that the plate be made sufficiently depressed to have no bearing upon the jaw, thus forming *lateral cavities* or chambers, which, when exhausted of the air by suction, secures the whole plate firmly in its proper position. This depression of the plate, also, restores to the jaw that fulness which it had lost by absorption, consequent upon the extraction of teeth.

The alteration which I make in the plate, is accomplished in the following manner: After obtaining an accurate impression of the jaw in wax, I cut out a portion of the wax along the line of the grinding teeth upon each side of the mould, about one inch in length by three-eighths in width, and one-tenth in depth, of an oval and cup-like form; taking care not to warp or otherwise alter the general character of the mould. Into this wax mould I cast my plaster of Paris; this plaster cast, when sufficiently *set* or hardened, I remove from the wax, and trim with a knife suitable to prepare the necessary metallic casts for striking up the plate. Should the plate not fit the jaw perfectly from this impression, I recommend that a similar plate be made of *sheet lead*; adjust this lead plate to the jaw, *taking care not to derange the suction cavities*; and, by placing this lead carefully into the former wax mould, cast the plaster once more into it and proceed as before.

I remain gentlemen, truly yours,

J. F. B. FLAGG, M. D., *Surgeon Dentist.*

From the American Journal of Dental Science.

REMARKS ON THE USE OF CLASPS, (FOR THE RETENTION OF ARTIFICIAL TEETH.)

BY P. H. AUSTEN, M. D., OF BALTIMORE.

Messrs. Editors.—We should be glad to see some remarks, from the pen of any of the experienced members of the profession, upon the following question: How far may the principle of Cleveland's air cavity be substituted for clasps in the retention of partial pieces of plate work? The question is one of eminent practical importance, and as such, its discussion deserves a place in a journal devoted to the improvement of dental science.

This subject has been suggested to our own mind by the obvious and acknowledged objections which lie against the use of clasps in many, (may we not say in all?) cases of their application. A concise exposition of some of these objections may place in a clearer light the importance of the query above propounded.

In the first place, the choice of teeth to which clasps may be attached is limited. No judicious operator will clasp around the incisores or cuspidati for the retention of a single tooth, much less a piece of several teeth. The clasp in this situation will be more or less visible—a serious objection with the patient, and one which sometimes holds good when a first bicuspid is chosen as the tooth to be clasped. The shape of these teeth opposes the retention of clasps, unless placed so far up upon the tooth, as almost inevitably to cause irritation and periosteal in-

flammation. Lastly these teeth are more liable than the molares, to have their position deranged either in a lateral or vertical direction, by the traction necessarily exercised by the artificial piece through the medium of its clasps. It is a well known physiological fact one upon the existence of which depends our ability to correct irregular dentures—that a very moderate force, if continuously applied, is sufficient to change the position of a tooth; on the other hand, there unquestionably is such force exerted, moderate though it be, in the retention of every piece, tending either to elongate the teeth, especially where they have no antagonist, or to change their position laterally; and in just so far deranging the adaptation of the plate.

Again, with respect to the choice of teeth, there is this objection to the use of the third molares, that unless the plate can be allowed to extend to some distance behind them, which is rarely ever admissible, the weight of the piece, being altogether in front, acts with an undue leverage upon the teeth and brings a strain upon them which must ultimately result in their loss. In the case of the other molares or of the bicuspidés, where the plate can extend behind as well as before the line of the teeth clasped, the traction is more immediately vertical, and, where there are teeth below to antagonise, is less likely to prove hurtful.

If, in addition to the above remarks, we take the fact of the greater liability of the first molar to loss from caries or other causes—greater in the proportion of two to one than in the case of the second molaris, or the second bicuspidis, and in a still higher proportion compared with the other teeth—we shall find that the number of teeth is limited, to which clasps may be attached with comparative safety. We shall often meet with cases where, in the absence of suitable teeth, we must attach to those liable to the above named objections, or else adopt the other alternative, (to which we should gain a very reluctant consent from our patient,) and extract them with a view to supply a complete upper set. The difficulty has in a few instances been overcome by the exact adaptation of a plate over the whole palatine arch, being careful that the edge of the plate shall not come too closely against the necks of the teeth still remaining in the mouth. Will not the same purpose be better answered and with less chance of failure by the use of a smaller plate with Cleveland's air chamber?

We have alluded to the physiological principle upon which is based the success of operations, for the regulation of teeth. This success is limited to a certain age, varying in different individuals, from eighteen to twenty-five. After this period, the same force which before could with impunity be applied, will excite periosteal inflammation, and cause

the loss of the tooth. The same result often attends the separation of teeth by means of cotton, wood or india rubber, preparatory to filling cavities on their approximal surfaces; and precisely such a result must sometimes happen in teeth to which clasps are attached, whether incisores, cuspidati, bicuspidates or molares. This forms our second objection, most applicable to the incisores and cuspidati, but also in some degree to the bicuspidates and molares.

A third difficulty is the retention of vitiated mucous or other fluids in the mouth between the clasp and the tooth. This will take place, however closely the clasp may be adapted, and will act more or less injuriously upon the tooth, however careful the patient may be to cleanse the piece daily. Especially is this liable to occur where, from the presence of decay, or other causes, the file has been used. It is the practice of many to file a badly shaped tooth so as better to adapt the clasp, also with the same instrument to separate two teeth to allow the clasp to pass between them. It is unnecessary to observe that such practice materially affects the permanence of the piece by increasing the loss of the tooth thus treated. We would not be understood as censuring those who adopt this course—it is frequently impossible to do otherwise; but wherever in our own practice such a necessity for the use of the file should occur, we would anxiously inquire if the piece might not be retained in the mouth in some other way than by clasps.

The bicuspidates and molares of many persons have crowns so short, or else of so conical a form—larger at the neck than at the base, or *vice versa*—that the adjustment and retention of clasps is exceedingly difficult, and sometimes, unless the file be resorted to, impossible. Again, the close adaptation of the plate and clasp around the neck of the tooth, is not unfrequently a cause of irritation, and subsequent inflammation of the dental and alveolar periosteum. This, like a previous objection, holds with more force against the single than against the double fanged teeth. Yet in cases of peculiar susceptibility, such as are by no means uncommon, it will apply to all. It is to avoid this danger, that the anterior margin of a plate must not be carried too close to such front teeth as may be still remaining. Some dentists seek to obviate the well known difficulty, by soldering a piece of half-round wire to the plate, thus giving it a thicker edge, at the same time bringing it to the very margin of the gum—a very useful and effective measure in case of a *lower* piece, to guard the softer parts against irritation by the otherwise too sharp border; but not so suitable in the present case, because it is not the gum which is irritated so much as the neck of the tooth itself, by the constant pressure, gentle though it may be, of an unyielding metallic plate.

• The above remarks are made, not in unreserved condemnation of the use of clasps, but rather as suggestive of the imperfection of the method. However excusable or necessary in any given case, it is, under the most favorable circumstances, an *imperfect* method—imperfect because it endangers sound natural teeth, which are ever preferable to the best artificial substitutes—imperfect, because it violates fixed physiological principles, and if harmless, is only so by a species of courteous forbearance on the part of nature.

Our art has made rapid improvement, is every day improving, must still greatly improve ere it reaches perfection. What we consider now as defective, is still an improvement upon the past; nor should we condemn and discard any plan till we have found a more unobjectionable substitute. To inquire after such a substitute is the design of the present article. Admitting that there are here and there cases where clasps may be most conveniently applied, and worn for years without injury, we ask—may not the air-chamber or suction plate be substituted, in the great majority of cases, with decided benefit?

Of its size, shape and position, in particular cases, we are not at present prepared to speak—judgment and experience must guide the operator. We think the Journal might be made the medium of much valuable information on this point.

Among the objections to its use, we would briefly notice: First, the interference with distinct articulation, occasioned by the prominence of the plate in the palatine arch. With many this is an important consideration, and if the impediment be considerable and permanent, will prevent the adoption of the plan. Again, the portion of membrane drawn into the opening of the cavity becomes sometimes exceedingly tender and sensitive. This, if persistent, will also prevent the substitution of such a piece for one with clasps. Lastly, the additional expense: it requires more gold, and takes more of that which to the professional man is of more value than gold—his time. These objections we cannot do more at present than simply name. Upon the last of the three we could wish to dwell more at length, not only upon its bearing in this one point, but also as connected with professional services generally: we hope on some future occasion to present to your consideration some remarks upon the “character of dental operations, and their due compensation.”

If the above remarks should elicit from any of your numerous readers the detailed result of their individual experience, touching the question proposed, they will fully have answered, Messrs. Editors, the purpose for which they were written.

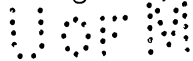
P. H. AUSTEN.

EXTRACT FROM DR. GODDARD'S ADDRESS.

We commend the just and liberal sentiments contained in the following extract, from an Address delivered before the Mississippi Valley Association of Dental Surgeons, at its late Annual meeting, to the thoughtful perusal of all our readers, and ask them to contrast them with those expressed in another address which was delivered at the last commencement of the Baltimore College of Dental Surgeons, before the Society of the Alumni of that Institution. The principles of association here advocated by Dr. Goddard, are those upon which the Society of Dental Surgeons of the State of New York was founded, and considering the rapidity with which dental practitioners have sprung into existence, without the means of thoroughly qualifying themselves for practice, we believe that every generous mind will admit that one of the means of elevating the profession, is by extending a generous and helping hand to those who stand in need, and are willing to receive it.—ED. RECORDER.

“Associations of Dental Surgeons seem suddenly to have sprung up in the United States, within the last ten or twelve years.

It appears that at first the promised benefits of these associations were not thought by some to be realized to the extent expected. But it appears to me that too much was expected, and that due consideration was not given to the nature of progress, and the necessity of allowing it time for its sure advance, step by step, in its steady march. I conceive that philosophical inquiry would establish the fact, that as much has been accomplished by association up to the present time, as could in the nature of things be accomplished, under the circumstances. Those who revert disparagingly to the too easy admission of tyros in our formations of associations, do not reflect upon the two important facts, that, before there could be exclusion, the power and the right to exclude must pre-exist; and that cultivation, pruning, and proper training, might reasonably be expected, eventually, to remedy imperfections. A philanthropic mind would naturally conclude that a mere pretender who had imposed himself unworthily into a scientific association in its formation, would very soon find himself out of place, and that his self-pride would stimulate him to the acquisition of that skill and knowledge which would entitle him to the position he had assumed. And even, on the supposition, that some impostor might be so destitute of either principle or self-pride as to aim, not at all at improvement, but solely at imposition abroad by the exhibition of his name in an association, the cheat could not long exist; for



the machinations of an individual would soon prove unavailing against the superior career of the truly scientific and skillful.

I think I may safely assume the position that, with regard to the admission of ignorant pretenders to our profession, in the formation of our societies, it would, in all probability, afford an appropriate opportunity of testing the very purpose of scientific association,—that of effecting such instruction, by pointing out sources of information, theoretical study and skilful expositions, as must improve and enlighten every member needing such professional light, until the whole profession should become elevated in public estimation; and I trust I shall not be denied the conclusion, that the ignoramus must indeed be wilfully and hopelessly incorrigible, who, with such advantages inviting him, would not speedily become an enlightened and acceptable member. It should not be forgotten that the object of professional association, is not to form a combination of self-elected exclusives who form their standard of perfection by the measure of their own attainments. Such men stand in no need of association for their own advancement, because they either are, or assume to be, above all competition. It is to those of less opportunity for scientific education and practical knowledge, that association with the more fortunate and eminent leaders of their profession, become most necessary and most desirable. And so far as the public at large is concerned, it is infinitely of more importance and benefit to the community, that scientific associations should be formed for the instruction and improvement of the comparatively ignorant in every profession, than for the mere conservatism of a professional oligarchy. I rejoice to say, that, however different may be opinions on the subject of the admission of members below a given grade of professional standing, the true principle of association amongst us, is thoroughly sustained. We find in all our associations of Dental Surgeons, the leading men of our profession nobly contributing the lights of science and skill which they themselves have attained, for the benefit and encouragement of their less fortunate brethren. They doubt not that by that means, the great object at which they aim, will be best and most speedily accomplished,—the elevation of their profession in the ranks of the useful and practical sciences, and in the estimation of the public at large. Far-seeing in their perceptions of a great truth to be revealed in the principle of association, they see the universal estimation in which professional men, who are known to be members of such scientific associations, must be held by an enlightened community, in contrast with self-lauded pretenders, who have no real evidence to produce or refer to, in support of their professional assumptions.”

DENTAL INFIRMARY.

In a convention of the Dentists of the State of New York, which met in November, 1847, to organize a society of Dental Surgeons for the city and State, it was stated by one of the speakers that one of the objects of such a society, as they were about to form, should be to establish a lyceum, which should embrace a library and museum, and also suitable instruments and conveniences for dental operations, for the benefit of students in dentistry, and a class of unskillful operators, of which, unfortunately, there were many among us. This was ridiculed by some present, and pronounced in the highest degree visionary; and those who advocated it were termed dental teachers and "schoolmasters."

The society, however, was organized, and has been in active existence ever since; and, during that time, it has founded a library, containing from fifty to sixty volumes; procured a suitable room, (although it is hoped that a better one will soon be provided,) for dental operations; furnished it with conveniences for practice, and for several weeks the members have been engaged, during every Saturday afternoon, in performing dental operations for the destitute. From three to five members have been present every Saturday to witness the operations. And, although one is appointed as the regular dentist in attendance, they have frequently operated for one another, that they might witness the different modes of practice which are pursued by the different members.

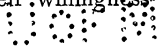
Their clinical operations are instituted, like the clinics of our surgical professors, for the double purpose of instruction (in ours mutual instruction) and benevolent efforts to relieve and prevent the sufferings of the needy and destitute. As it is believed to be the first of the kind, and as the dentists in other large cities may think proper to follow a similar course, we will give the following regulations established by the committee to whom the society entrusted the management of the clinical operations:

The institution is called the "Infirmary of the Society of Dental Surgeons of the State of New York."

The infirmary shall be opened for clinical operations every Saturday afternoon at one o'clock, through the winter, and at two in the summer.

The operations shall be for the benefit of the inmates of our charitable institutions, and all other worthy, indigent persons.

All the members of the society who may signify their willingness to



operate, are to be notified in the order in which their names stand signed to the constitution. If the health or engagements of a member prevents him from attending in his regular turn, he is to procure a substitute; but if he cannot do this, he shall give due notice to the secretary, who shall notify the next in turn.

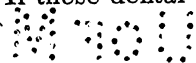
The infirmary is organized by the appointment of a president, a vice president, and a recording secretary. Committees are also appointed to select instruments, and other suitable apparatus for dental operations, and if necessary, to procure patients. This last committee have had nothing to do thus far, as patients enough have presented themselves from the Institution for the Deaf and Dumb.

Each operator is to record in a book the name of each patient for whom he operates, and designate in one of Ambler's Dental Journals the character of each operation, and the tooth upon which it was performed. No artificial teeth are to be inserted, but all operations confined to the organs in and around the mouth.

The Infirmary is open to all the members of the Society of Dental Surgeons of the State of New York, and to all the students of the members. And, by an article in the by-laws of the society, each member who takes a student shall pay into the treasury of the society ten dollars per annum, for which the student shall have the privilege of attending all the meetings, witnessing all operations, reading books from the library, &c. &c.

The operations performed thus far, have shown that hardly any two dentists can be found who practice alike. They use different instruments for the same purpose; place their patients in different positions; steady their head, and dispose of their tongue, lips, and surplus saliva, in an entirely different way; prepare and introduce their filling in every conceivable manner—in short, it is found that each operator has his own peculiar method—in many points differing from any other. Now, without attempting to decide *which* method is best, in any particular part of a dental operation, we may safely say, that there is, in every step of every operation which the dentist is called to perform, *a method* which is absolutely the best for every dental student to learn, although it may not be wise for an established operator to unlearn what he has already acquired, to begin anew with another method, even though it be superior in some respects to the one which he pursues. It is only by experience and mutual observation that this best *modus operandi* is to be discovered, and the various methods now pursued, consolidated into one which shall be at once the simplest, safest, and most effectual.

If these dental clinics are continued with the unanimity and zeal with



which they have been commenced and continued thus far, each of us will have an opportunity to witness the imperfection of his own operations; and this, we trust, will be the object of every member who attends the Infirmary to witness the operations of others. Let each one strive to discover some point which is superior to his own and adopt it in his practice. If each one is actuated by a sincere desire to improve himself and not to instruct others, we shall all be humble teachers as well as learners in an art which requires more tact, science, and manual dexterity than the highest gifted in the profession can now boast of possessing.

ANNUAL MEETING OF THE MISSISSIPPI VALLEY ASSOCIATION OF DENTAL SURGEONS.

This Society held its Annual Meeting at Louisville, Kentucky, Sept. 11, 1849.

Dr. W. H. Goddard of Louisville, delivered the opening address, (see an extract on another page of this number of the Recorder,) which is published in the October No. of the Dental Register. This address is full of enlightened and liberal views, and gives evidence that the writer is actuated by a zealous enthusiasm for the promotion of the honor and respectability of the dental profession.*

Dr. E. Taylor gave notice that he had notified all the manufacturers of mineral teeth, of the premium offered by the society. (The number of lots which were sent in for competition is not mentioned; but the result will be found in another column of this number.) A committee was then appointed to report upon their merits.

The report of the Publishing Committee shows that there is a lamentable want of energy among dentists to sustain the Dental Register. Although we cannot clearly understand the figuring in this report, yet from the fact that money was voted by the society "to meet the contingent expense of the Register for the past year," we are led to suppose that the subscriptions do not pay for the expense of publishing. Now this certainly is not as it should be. The Dental Register of the West, is a valuable periodical, ably edited, and comes to us well filled with useful practical articles, and entertaining and miscellaneous items, directly connected with our profession. It should be well sustained, and

* It gives us the more pleasure to record these evidences of liberality from the pen of Dr. Goddard, because our only recollection of him is in connection with the arbitrary and bigoted expulsion of members from the American Society of Dental Surgeons, when we felt it to be our duty to oppose him.

we recommend it to all practising dentists as eminently worthy of their patronage. The Society ordered that it should be continued in the same form as volume second.

The report of the Treasurer, after having been properly audited, showed a handsome balance in favor of the Society.

Dr. Edward Taylor, of Cincinnati, (who resigned his membership, intending to retire from practice), and Dr. J. W. Bright of Louisville, were elected honorary members of the Society.

In the afternoon session, Essays and Addresses on practical subjects were read by Drs. Leslie, Griffith, and Taft. We have received a corrected copy of Dr. Leslie's essay on Metallurgy, which will be published in the Recorder.

During the evening session, Dr. Curtiss read a paper on the use of the file, and the remainder of the evening was mainly occupied by practical discussions. Dr. S. C. Gray of Cincinnati, was elected to membership.

In the morning session of the second day, communications from a committee on the best mode of filling teeth were read, and elicited considerable discussion from the different members, after which they were referred to the publishing committee. The Society then elected the following officers for the ensuing year. James Taylor, President; John Allen, 1st Vice President, Samuel Griffiths, 2d Vice President, A. M. Leslie, 3d Vice President, W. H. Goddard, Corresponding Secretary, John Allen, Recording Secretary, J. W. Taft, B. T. Whitney, and A. Berry, Examining Committee, S. P. Hulihen, G. L. Vaneman, and J. G. Curtiss, Executive Committee, J. Taylor, W. H. Goddard, and A. M. Leslie, Publishing Committee.

The afternoon session was mainly occupied by the Report of Committee on Mineral Teeth, and awarding the premiums to the successful competitors. After which the Society adjourned to meet on the second Tuesday in September, 1850, at the lecture room of the Ohio College of Dental Surgeons.

We have thus attempted to give our readers a condensed abstract of the proceedings of our professional brethren in the West, from which it will be seen that they are up and doing; let the dentists of the Empire City and the Empire State arouse themselves, or they will be outstripped by their less favored competitors, scattered throughout the broad and fertile valley of the Mississippi. We shall from time to time publish from the Register the essays read before the Society, and such other practical information as may be useful to our readers.

DENTIST'S CHAIR.

Mr. F. SEARL, of Springfield, Mass., has constructed a chair differing somewhat from any which we have before seen. The upper part of this chair, containing the seat, the arms, and the back, is detached from the legs, and a square frame is placed between them; to the back part of this frame the upper portion of the chair is hung by hinges, while the front of the intervening frame is also hung in the same way to the lower part. Two cog-wheels, near the front part of the frame, playing in two racks attached to the lower side of the seat, serve to elevate the front part of the seat and throw the patient backwards; the upper part of the chair turning on the hinges which connect it to the back part of the intermediate frame, while two similar cog-wheels, near the back part of the frame, and attached to the lower portion of the chair, playing in two racks attached to the under side of the frame, elevate the back of the chair. The form of the chair when elevated resembles that of the letter Z; the intermediate frame, which elevates the chair, corresponding to the diagonal line in that letter. By means of these two motions, the seat may be raised to any desired height, and the back placed on any inclination which the operator may wish.

One of these chairs may be seen at Messrs. Jones, White & Co.'s, No. 263, Broadway, and also, one of Mr. M. W. Hanchett's, described in the November number of the Recorder, for 1848.

PREMIUM TEETH.

WE perceive that the premium offered by the Mississippi Valley Association of Dental Surgeons, and announced some time since in the Recorder, has been awarded to Messrs Jones, White & McCurdy, for the best mineral teeth, one hundred in number.

These teeth have now been in the market several years, and are so well known and appreciated by dentists, that they need no recommendation from us. These manufacturers have made several improvements in the forms of the various classes of teeth, and manifest a desire to supply all the various shades, patterns, and styles which are needed to match the natural ones.

The second premium was awarded to Mr. James Alcock, of this city, for the second best one hundred teeth. The "Dens Perfectiones" of this manufacturer were much admired and highly commended by the society, and twelve of them ordered to be deposited in the museum of the Ohio College of Dental Surgery, "for preservation and future reference."

THE DENTAL VISITER,

Is a small monthly journal devoted to Dental Surgery and other useful subjects, published in Bridgeport, Ct., edited by D. H. Porter, Dentist.

We have received but a single number of this periodical, containing a leading article on Physical, Mental, and Social Education, and several miscellaneous items, of a similar character, all useful and instructive to those who have families to educate, and teeth to preserve.

BLOCK TEETH.

Dr. Crosby of New Haven, Ct., has sent us some samples of block teeth of his own manufacture, which are very neatly carved, of a natural color, and give evidence of possessing all the qualities desirable in teeth made in this way. We learn that he is prepared to manufacture these blocks to order, for dentists in practice, at the shortest notice, and at somewhat reduced prices. As competition is much needed in this branch of business, we recommend those who use this kind of teeth to try Mr. Crosby.

FUSIBLE METAL.

In our recipe for fusible metal in the last number, an error occurred which was not noticed until after the work had gone to press. The recipe should have been :

Bismuth,	.	.	.	.	.	5 parts.
Lead,	.	.	.	.	.	3 "
Tin,	.	.	.	.	.	2 "
Mercury,	.	.	.	.	.	1 "

The error occurred in copying by mistake, a part of the recipe of Mr. S. Covell instead of that of fusible metal.

It may be well for us to state here, that when combining the different metals, to form this fusible mixture, the Lead should be first melted, then the Bismuth added, after that the Tin, and last the Mercury, when the mixture is not above the melting point. To prevent the evaporation of the mercury, when using this metal, care should be taken never to heat it above the melting point. It should be poured into the wax impression when about the consistence of cream. Those who preserve the Recorder for future reference, would do well to correct, with a pencil, the recipe in the last number.

NEW YORK DENTAL RECORDER.

Devoted to the Theory and Practice of
SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.

Vol. IV.

JANUARY, 1850.

No. 4.

REPORT ON THE BEST METHOD FOR TAKING IMPRESSIONS,

Made to the Society of Dental Surgeons of the State of New York, at an adjourned meeting, held Dec. 17th, 1849.

Mr. President and Gentlemen:—

The Committee on Impressions appointed by this Society, intended to have presented their Report at an earlier period, but owing to their absence from the city during the past summer, it was not till late in September that they were able to hold their first meeting.

Your Committee are aware of the responsible and important duties which necessarily devolve upon them, for every dentist must admit that to take a correct impression is the first consideration in supplying substitutes for the natural teeth, and if we fail in this, our efforts are often rendered futile, or even worse than useless.

In all the branches of our profession, surgical and mechanical, great improvements have been made within comparatively a few years, and we need only take a retrospect of the past to exemplify this fact. It is probably within the recollection of some of the elder members of this society, when impressions of the mouth were not taken, and when the substances used to construct artificial teeth consisted of rude materials, such as bone, ivory, the tusks of the sea-horse, horn, and even wood.

It was usual at this period, in order to ascertain the dimensions of the rough material from which teeth were to be manufactured, to introduce a thin piece of wood, or the end of a shingle, into the mouth, and scribe round as far as the teeth were designed to extend. After the block had been obtained, it was placed upon the bench of the operator, whose patient was seated in a chair near at hand. The dentist would also procure a quantity of some coloring material, and form a kind of paste, when he would take a small quantity of it upon his finger and rub it over the gums, after which he would press the block against the parts he intended to fit, by which means the prominent points would stain the

block, thus affording a kind of outline, and after the stained surface had been removed by the aid of a scraper or chisel, a similar process was repeated till the groove was completed. The block was then trimmed, and the teeth shaped, and after having been fitted in the mouth, was tied to the adjoining teeth. It was also customary to keep a lot of carved work on hand, to fit in as occasion and opportunity might require.

The use of wax for taking impressions, however, was subsequently discovered, and also of plaster of paris for obtaining models, which was considered a great discovery, and kept an important secret among the few for many years, and not divulged except under certain restrictions.

The manner of taking impressions in wax, when it was first used for this purpose, consisted in holding before the fire a small cake of this material until the surface became soft, it was then pressed against the gums, when a slight indentation was produced, and it was again held before the fire and the same process repeated till the impression was formed.

The discovery, however, was soon after made of softening the entire mass of the wax, and of pressing it against the gums with the fingers, without the aid of a frame or holder, and the dentist, after he had withdrawn the impression, would often bend it, one way or the other, so as to suit his constructive ideas.

We will not, however, trespass upon your time, by relating the condition of our science even thirty years since, for the vast improvements which have been made up to the present day would alone occupy an extended report which would no doubt be interesting to the members of the dental profession generally. We will now proceed to the important duties for which we were appointed.

Among the materials which from time to time have been recommended for the purpose of taking impressions, we find the following :—

Pure bees-wax, white wax, wax combined with other substances, plaster of paris, putty, tallow, burgundy pitch, shoemaker's wax, rosin, sealing-wax, clay, amalgam of tin and mercury, gutta percha, and, in fact, a great number of other soft and plastic substances.

On a careful examination of all those substances, which would seem to claim attention, we have arrived at the conclusion that pure bees wax and plaster of paris, or sulphate of lime, are the best substances to be employed in taking impressions. We might enter into a detailed explanation of the result of our experiments, which would only extend this report to considerable length, without eliciting much practical information.

Manner of taking an impression with Wax.

To take an impression with wax, the first care should be to select a properly constructed holder. The kind of holders we consider best adapted for the purpose, are those which have been manufactured by being swedged up in a manner similar to the process of getting up atmospheric pressure plates. We have superintended the manufacture of several of these holders, and we very respectfully take the liberty of offering them for the inspection of the members of this society. The base of these holders were struck upon iron casts, and the handles attached were also swedged in a similar manner, and soldered in a secure way to the base; thus forming a convenient frame not only for the purpose of taking hold of, and retaining the wax, but of steadily maintaining its position. The holder should be tried in the mouth previous to filling it with wax, to ascertain if it is of the right size and shape. The base of these frames of all holders may have small holes pierced in them, similar to those we have presented.

The next consideration is the preparation of the wax for taking an impression. We would recommend pure bees wax, divested of any combination, even of coloring matter, which should be formed into thin cakes previous to use. The wax may be prepared either in warm water or before the fire—the former is the best method. Break the wax into small pieces, and put in water heated to about 100°, and gradually add water of a higher temperature, until by working with the fingers, the small pieces become soft and plastic, when the whole should be mixed together taking care that no hard lumps remain. The wax holder should be warm, and of an equal temperature with the wax before it is filled. It is important that the wax should be well packed in the holder, and only filled to an even surface with the rim. The patient, now seated in the chair, must be directed to maintain an easy and upright position, and to open the mouth in a free and natural manner. The operator should introduce the wax entirely within the lips, so as to correspond with an equal and even semi-circle with the jaw, before any pressure is made against the teeth or gums. A proper regard must be paid with reference to the condition of the gums, and the position of the teeth, of which it may be desirable to obtain a correct impression. The frame and wax should now be pressed upon and against the parts until they are entirely embedded in the wax; at this time much care ought to be taken to maintain the entire immobility of the impression while in contact with the parts, which can be done with one hand, and with the finger of the other press the wax from the inside against all the prominences, and into all the depressions of the interior of the mouth, as well as all around

the exterior surface or border, so that the wax is brought in close and actual contact with the gums throughout. The impression should remain in contact for a short time in order to allow it to partially set, during which time a probe may be passed through one or more of the holes in the holder up as far as the high points of the roof of the mouth, to allow a free current of air, to prevent atmospheric pressure. In withdrawing the impression, it should be pressed downward and forward if from the upper jaw, and upward and backward if from the lower, until the wax is entirely disengaged; then with the index and middle finger press the lips outward, so as to favor the egress of one side or end, while the other side may be relieved in a similar manner. A short time only should intervene from the taking of the impression till it is filled with plaster, for the wax in cooling shrinks or contracts a little, the exact amount of which cannot be well calculated.

The entire surface of the impression should be covered with a thin coat of olive oil. Small pins may be placed so as to correspond with the centre of the cavities made in the wax by the teeth, which may be a judicious course to pursue in certain cases. A strip of paper may be passed around the mould to retain the plaster in a convenient form till it hardens. The plaster batter should be filled into the mould in a careful manner. After the air bubbles, which often arise in mixing, have been removed, introduce a small quantity of the plaster first and tap the base of the holder against some hard substance, so as to force the batter to the bottom of all the depressions in the impression, then fill up the mould to the requisite thickness, and when the plaster becomes sufficiently hard detach the wax from it.

Various methods have been practiced in separating the wax from the model, but we would recommend the introduction of the wax holder and model into water of about as high a temperature as would be necessary to prepare the wax for taking an impression in the first instance, when the wax becomes soft and the model can be easily removed without injury to the mould, from which other models may be formed. The model may now be trimmed, and prepared for taking a mineral cast.

Manner of taking an Impression with Plaster.

From the experiments we have made with Plaster of Paris, or sulphate of lime, we are prepared to state, that it is the best material yet known for taking an exact impression. For getting up atmospherical pressure sets, plaster may be used in taking the mould of the parts with decided success, but where only a few teeth are required wax is preferable.

It would be almost impossible to procure a correct impression with plaster, where the remaining teeth are long and have necks smaller than their crowns, for in such cases, after the plaster concretes, the impression cannot be withdrawn without irreparable injury to it.

The best plaster should be procured for taking impressions, and it should be well calcined, finely pulverized, and sifted.

Previous to preparing the plaster batter, a properly constructed holder should be selected. If the gums are flat, and none of the natural teeth remain, stop the small holes in the base of the holder with wax, then place a rim of this material entirely around the border of the holder, which should be tried in the mouth to ascertain if there is sufficient capacity to include all the parts, and to properly embed them, after the plaster shall have been introduced. The patient should now be directed to maintain an upright and easy position, with the head inclining rather forward than backward, for if the head is thrown too far back the batter will run down upon the palatal organs, and cause much uneasiness on the part of the patient at a time, when it is of the utmost importance that the head should remain steady.

The plaster ought to be thoroughly and quickly mixed with warm soft water, to about the consistence of cream. Remove the air bubbles, and fill the holder from one to two-thirds full of the batter, according to the circumstances of the case ; then introduce the holder charged with the plaster, within the mouth, and press it against the parts till they are entirely embedded, taking great care to keep the impression in close contact with the gum till the plaster hardens ; during which time a small wire may be passed through the base of the holder up to the centre of the roof of the mouth, to allow the air to pass up, and thus prevent atmospheric pressure. The impression should be withdrawn from the mouth with the same precautions we have recommended in taking impressions in wax.

The plaster sets much more freely and quickly by being mixed with warm than with cold water.

In consequence of the high elevation of the roof of the mouth, caused by an oval alveolar ridge, it is often difficult to obtain a correct impression with plaster alone, and to obviate this difficulty we would recommend that a deep wax impression be first taken, which may be enlarged by pressing the finger around the groove, so as to form a more capacious retainer. The plaster may now be spread over the surface of the wax mould, which should be again introduced, and carried high enough to cover, or embed throughout, all the parts ; by which means the plaster is carried to the highest point of the roof of the mouth. Ano-

ther advantage is gained by taking this preparatory wax mould. It is impossible with wax to obtain an exact impression of the outside depression, caused by a projection of the alveolar ridge, but by the use of plaster as we have just mentioned, this difficulty is overcome. The deep wax impression, having a thin rim all around the anterior border, supports the batter, which will readily flow over and into the groove or depression, and when the plaster concretes on withdrawing the impression, this outside rim frequently breaks, but it can with the aid of the wax be easily and exactly adjusted, so that when the model is formed, and the outside rim peeled off, a correct transfer will have been obtained.

The surface of the plaster impression should be covered with a thin coat of the solution of soap, of about the consistence of varnish. A strip of paper may be placed around the mould, and the plaster batter poured in, as we have recommended in cases of wax impressions. After the plaster has become sufficiently hard the model can be separated from the plaster mould with but little effort, which may then be trimmed and prepared for taking a metallic cast.

The foregoing brief report has been drawn up very hastily, and without as much regard to minute details as might have been expected, for most of the leisure time we have had aside from the duties of our profession, has been occupied, not only in experimenting with the different materials for taking impressions, already known, but in striving to discover some new substance, or some new combination, which might supercede those we have already recommended.

J. LOVEJOY,
H. BURDELL.

For the New York Dental Recorder.

A VOICE FOR THE TURNKEY.

BY S. M. HOBBS.

Every body, with brains above an oyster, admits that this is an age of invention—almost every body, that it is one of *improvement*. Still, the past, with its manifold productions and experience, is not to be despised, and is not, by those who think and act rightly. Not a few very good people, in many respects, see merit only in things of the present time. As of other things, so in matters of Dentistry.

We wish to have a serious word upon the TURNKEY. That instrument which has revolved in some form or other through so many ages, since the introduction of modern forceps, has experienced, with many, an entirely unmerited neglect. In advocating its claims, we do not wish to detract from the substantial utility of the forceps, but rather to invite

anew the attention of the profession to what we deem important considerations. Whatever is really useful should at once be engrafted into the practice of the good dentist, whether or not it meets with the approbation of impotent prejudice or the foolish dictation of those in high places.

Our first, and principle, and all important claim for the key is, that *it will extract teeth which no other instrument can be made to do*. This it does every day in the hands of those who use it as it ought to be used. We wish the public to put its finger on this point:—*It can be used with perfect success where every other known instrument will inevitably fail*; and this from the admirable beauty and adaptation of its sterling principle; provided, all the while, let it be understood, that it is used with intelligence, skill, and discrimination, without the exercise of which no man has a right to have this or any other dental instrument in his hands.

Let us illustrate our position. Take any tooth, but more particularly, a molar, which has one half or more of its substance decayed considerably below its sheathing alveolar walls, while the other half, or such part as there may be, remains proportionably in sight. This class of caries is more common than any other, and is usually found on the labial surfaces of teeth. Now if the decay be so far advanced as we have supposed, viz: several lines below the alveolar partitions, either upon the labial or lingual surfaces, and the best forceps in creation applied, by however good a hand, and in whatever direction the power, it can *only* be, under the most arbitrary necessities of the case, but to ensure the fracture and destruction of the tooth and cast misfortune upon the whole operation. At the same time it exhibits a most lamentable ignorance of mechanical law, the more inexcusable that its effect is needless human suffering.

A properly constructed turnkey, properly applied to the cases we have above instanced, would very rarely fail of extracting the teeth with the most gratifying facility, both to the operator and patient. The structure and principle of the instrument finds a precise adaptation to them. With but barely a catching point on either side of the tooth, with the fulcrum at a suitable angle, and a skillful, confident movement of the whole key, there are few cases, however desperate in appearance, but will experience the happiest treatment. And these are cases, let it be impressed home to every reader, where forceps *could not* succeed, except by miracle.

Much has been said about injury to the alveolar border resulting from the use of the key. This is thoughtless and idle. It never occurs with the well managed instrument. No teeth are ever drawn without pain, when anesthesia is not produced, but we think that man is wanting in correct observation who asserts that, as a general rule, the operation of

drawing teeth is attended with more suffering under the use of the key than the forceps. Whenever the assertion is put forth, if done by one who can tell a hawk from a handsaw, it is as a bugbear to bumbag weaker heads than his. The many stories which have been told about broken jaw bones, patients raised from the chair and dragged around the room, two or three teeth extracted at once, &c., should be inserted in the next edition of the "*Old Wives Tales*." These tell nothing against the discussed instrument, and, with those who think, pass for what they are worth, just nothing at all.

A word more of what are termed "accidents" on the score of the key. It is the delight of some seriously to rehearse the mischief it no doubt has sometimes done. But if such profound wiseacres would look into real circumstances and facts, they would learn an altogether new and useful philosophy. It is in the gross abuses of a shameless malpractice that we are to seek, and wherein *only* we shall find, the true solution of whatever sins can be put on its unoffending head. The same wonderful logic might destroy every instrument in the dentist's case. It is altogether unfair and unprofessional to bandy such weak and miserable words. Why, who does not know that thousands annually kill themselves drinking pure water? And yet, water is the best and only proper drink for man. This is the character and amount of the *arguments* urged against the key. We firmly believe this—and our professional reputation, and all else of good we hold sacred, is based on the assertion—that *no more injuries occur by the use of the turnkey than would happen BY THE SAME HANDS with the forceps*. When scavengers, wood-sawyers, blacksmiths, barbers, and loafers, know their places and will keep them, we shall hear less of malpractice, and we hope less abuse, by some portion of the profession, of an instrument that has more good qualities than any ever yet invented.

By these remarks let it not be understood that we are an enemy to the world of forceps which have recently been introduced. Such is not the case. The more than thirty, actively in use in our bureau, is a protest and refutation of any such imputation. The forceps has a place and a work—so of the key. But there are times when alone the latter can be used, and such times are by no means unfrequent. Every dentist must see them if he will. The key is an indispensable instrument, and no operator's case is as it should be without it. We *know* that certain teeth cannot be drawn without it. This is capable of a demonstration, which all but wilfully blind and ignorant men cannot escape.

We, therefore, in the utmost sincerity, invite the profession to a close examination of its *real* merits. Let prejudice and canting clamor be

thrown aside, and each individual mind *look at the thing as it is*; for we feel assured that it requires but this to gain for it that veneration it so deservedly merits.

From the American Journal of Dental Science.

SINGLE ANTAGONIZING CAST, &c.

BY C. T. CUSHMAN, COLUMBUS, GA.

COLUMBUS, GA., *Sept. 14th*, 1849.

DEAR SIR :—Agreeably to my promise, made you in Baltimore, in July, I will now give you a description of a method, invented by my partner, J. FOGLE, of antagonizing an upper plate of teeth with the model of the opposing teeth, by means of *one cast only*; or, in other words, of getting the accurate *set* of the artificial teeth, in the absence of the patient, by a single cast, which truly shows the relative position of the plate to the lower teeth—precisely the same as when in the mouth. The following is the method of making—

Fogle's Single Antagonizing Cast.

After the plate is swaged and fitted to the mouth, the clasps adjusted and fastened, and all ready for setting the teeth—build on a ridge or wall of wax, corresponding to the alveolar arch, nearly an inch in height. This is best done by warming and kneading the wax until soft, and first warming the plate over a spirit-lamp. The wax which we prefer is the composition of Dr. Griffith, of Louisville: to one pound of good yellow beeswax, add two ounces of gum mastich, and one ounce of whiting. Add the pulverized gum and whiting to the melted wax—stir until nearly cool, then mould into thin cakes, convenient for use. It may be colored red, if preferred, when melted.

Now put the plate and wax attached in the mouth, and desire the patient to press up his lower jaw gently, until the teeth meet naturally, that antagonize, and sustain the pressure and force of mastication. This done, let him gently open his mouth to its full extent, when you remove the plate with the wax, in which you will have the perfect impress of the lower teeth.

Lay the plate on the work-bench—first putting down a double fold of newspaper—with the wax uppermost. Make it lie *level*, by means of little bits of paper, if necessary, and surround it with a thick *ribbon* of *lead*, bent into a hoop, to confine the liquid plaster. This form of lead is the most convenient for this purpose, in the making of all plaster casts of the teeth, articulating models, imbedding teeth for soldering purposes; because it keeps

whatever shape or position you give it, without tying or fastening. Several of these ribbands, of different thicknesses, should be kept on hand for convenient use.

Now make a thin batter of plaster—pour a little into the wax-impression, and blow upon it to get a perfect representation of the cutting edges of the lower teeth, which is an important matter; then fill up the hoop to the height of an inch, and gently shake it level with the tip of the spoon. When set, remove the hoop and paper, and while it is yet soft enough to cut easily, from the under side shave down, with a sharp knife, to the *plate*, and around the clasps, until you can remove it easily. Then take off the wax, and trim the cast a little for neatness.

You now have an impression of the plate and clasps in plaster; and just below this, and in front of it, the lower teeth, standing in bold relief, *in the same cast*. And it must be plainly evident to every one, that, when the plate is put back into its impress, it bears just the same relation to the plaster, which it bore to the natural teeth when in the mouth. Thus—with the plate so placed, and a narrow ridge of adhesive wax on it, you may proceed to select and adapt the artificial teeth with great exactness, and more neatness and convenience than by the mouth. To admit of a plenty of wax on the plate, for this last purpose, the impress of the plate may be cut one-half, or just so much that it will not *tilt* on its basis. If the impress of the *clasps* is left deep, this cannot well happen at all. In large, or suction plates, of course there is no apprehension on this score.

To more fully illustrate the foregoing described process, I send you, herewith, a cast of the kind, which *has been used* for the purpose intended. This will excuse its rusty appearance. You will observe a considerable piece gouged out from the impress of the plate, *opposite the second bicuspid of the lower jaw*. That was for ascertaining the proper height and set of a *masticating block*, which, in this case, was made to antagonize with that tooth, and sustained the pressure on that side of the lower jaw—thus affording it something *firm* to rest upon, and relieving the front teeth from the danger of being knocked off—the clasp teeth from being *strained* or drawn upon—or the plate from being thrown out of a position by unnatural concussion: one or all of which troubles must, otherwise, inevitably occur to an artificial piece of the kind.

As these are often required—there are so many cases where the upper front teeth, or even a whole set, are wanted, and there remain only the front teeth and two or three, or possibly all, of the bicuspides in the lower jaw; and as this *Single Antagonizing Cast* will be found the most simple and convenient guide for arranging these blocks—perhaps I ought to describe them in this connection.

Dr. Elliot, (Journal, volume v. p. 88,) describes a similar method of overcoming the difficulties in such cases—using *small bicuspides and motares*, ground short, and square on their antagonizing surface, to meet the opposing natural teeth. Outside of these, and hiding them entirely from view, he sets a row of longer teeth—using all cuspides in the place of grinders. It will be found more convenient, however, to use *metal* blocks; and they are more agreeable to bite upon, than the surface of a mineral tooth, and, of course, not so liable to *break*. I will therefore proceed to describe to you the method of making and setting

Fogle's Masticating Blocks.

Supposing, then, you have a case to supply the superior teeth—say four or six—and the subject has no grinders that antagonize and afford a basis of support for the lower jaw—it then becomes indispensably necessary to set these blocks, (or something similar,) or allow the inferior incisores to touch and rest upon the plate, behind the artificials. This practise, though general, is unscientific; because it allows the jaws to approach too near each other—unnaturally shortens the physiognomy, and the dentist is obliged, if he do so, to give an unnatural *projection* to the artificial incisores. All of these difficulties are avoided by using the *masticating blocks*.

As it would be unnecessary, and a waste of material, to make them *solid*, it is best to make a *flattened tube*, and solder in a *head*. Take a piece of plate, of ordinary thickness—cut a stripe as wide as the desired length of the block wanted, bend it into an oval form, whose longest diameter is a little greater than the tooth which is to strike upon it, and whose shortest diameter is sufficient that the tooth cannot well miss it, when the mouth closes naturally.

By the aid of the *Single Antagonizing Cast*, this tube may be fitted to the plate and the opposing tooth with great exactness. When so done, and stuck on with the adhesive wax, put a little plaster and sand around it, remove the wax, and solder it with a small bit. If the patient be now present, it may be tried in the mouth; and, if necessary, slight alterations may be made—as filing, compressing, or *leaning* it. By filing the tube a little *bevelling*, so that the posterior shall be longest, it will be readily seen that when the tooth strikes upon it, the tendency will be to drive the plate more firmly into its position. Now bevel the inside of the tube, and bevel a head to let into and fit it, and solder this and the block *permanently*; or the soldering of these last may be deferred, and done by the same heat which fastens the teeth to the plate. After the block has got its final set and adjustment, the dentist may proceed to select and arrange the teeth as usual.

In such a case as I have instanced, it may be necessary to set one or more blocks on *each side of the mouth*, to sustain the pressure equally. When this is advisable, a firm antagonizing tooth should be selected for each—one that is likely to last well. A plate so made can be worn with great ease and comfort, as the pressure from the inferior jaw is *equally* divided over the palatal surface covered by the plate—and the artificial teeth may be set in *natural position*, and so as to completely hide the blocks from view.

In consideration of the simplicity of the *Single Antagonizing Cast*, and its various and *valuable* uses, I am now forced to question your opinion of the ordinary *double* articulation cast—that *they* are “the most accurate and convenient antagonizing model *that can possibly* be obtained.”—(Principles and Prac., 3d ed., p. 663.)

I next proceed to describe to you

Fogle's Temporary Fastenings for Clasps.

These may be regarded as a very important improvement upon any hitherto known method of getting the *set* of clasps to plates of artificial teeth, or plates for correcting irregularities, defective palates, &c.

The usual method is, to get the set by means of wax holding the clasp to the plate, or be guided by the plaster cast alone. Some dentists practice one way, some the other. The first method is tedious, and often impracticable. If the fastening-teeth stand a little *leaning*, the wax becomes disturbed in withdrawal from the mouth, and the relative position of the clasp is changed. This, too, may happen in more favorable cases—so frail is the tenure by which they are connected, and the operator not perceive it until too late for remedy—after it is soldered.

In the other method, it is found impossible to get that *precision* of set by the plaster model, which is attainable by this method, for various reasons: one is, if the fastening-teeth stand a little *leaning* in the mouth, (as they almost invariably do after the approximal tooth is removed,) the model does not give a correct fac-simile of the mouth, because the wax impression had a “drag” from these teeth in withdrawal, which, of course was transmitted to the plaster cast. Secondly, the model is a hard and unyielding substance, while the natural parts to which the plate is to be adapted, are quite the reverse—soft and elastic.

By this method, one may easily get the *accurate* and *exact* set of the clasps, as *by the mouth*. First, make your clasps by the plaster model; leave the *ends* straight for the present. Here I would observe that in fastening to the second, and sometimes *third* molares, the clasp has to be *curiously* shaped, to set closely around the tooth, and *hold* on. A *straight* clasp bent to the circumference of the tooth, if a *dens sapientiæ*,

would only touch at *two or three points*, owing to the peculiar shape—the sides being generally short, rounded or *bulging*, and *bevelled*, particularly on the posterior side—and it could not be made to *stay on*.

An excellent way to overcome this difficulty is, to fit a clasp of *thin lead* to the model-tooth, by bending it and cutting away the edges until it has an accurate fit all round. Then straighten this, and lay it upon the material from which the clasp is to be cut, (we use eighteen carat gold, generally a little thicker than the plate;) mark around it with a sharp point, and *cut by the pattern*. This gives a very perfect fit.

After the clasps are made, cut a strip of plate about a line in width, and about five-eighths of an inch in length. Place the clasp on a coal, and one end of the strip flatwise, in juxtaposition with the upper part of the lingual surface of it: apply borax and a bit of solder to the point of union, and make fast in a moment. Now place both on the model, and bend the other end of the strip until it touches the plate, forming a *bow* or semi-circle. File it to make a *point*, and shorten it, if necessary—apply borax and solder as before, and make fast in another moment.

You will perceive that the clasps are now fitted and fastened *by the model*; but, on trying the plate in the mouth, they may be *swung around, raised up, lowered, twisted*, or set in any desirable position, to give them an *exact* and easy adaptation to the teeth. The *set* that is given them will be maintained so firmly by these *temporary fastenings* that it will not easily get changed, in the subsequent handling of the piece. The *permanent* soldering may now be given them—placing the piece on the plaster model for the purpose. It is well to shave away the plaster under the joint to facilitate the flow of solder through to the under side. Or this may be deferred, and done by the same heat which unites the teeth to the plate. We generally prefer the former way. In getting the *accurate* set of the clasps, if they have been pushed away from the plate so as to leave a *space* between; this may be filled with chips or clippings of plate and solder, and all united. After this is done, the *bows* are cut off, the solder filed and scraped down and polished off.

In very *difficult* cases of adjustment—as where the clasp-teeth stand *leaning*—where you have to fasten to the second or third molar, it will be found still more advantageous to pursue this plan, viz. after soldering one end of the strip to the clasp, and having bent the other to touch the plate when on the model; put both in their proper place *in the mouth*; then, with a sharp-pointed instrument, indicate the point where the bow touches the plate. Place them on the model again, *adjust the end of the bow to the point marked*, confine it there, and solder it fast. This will save considerable *twisting* and subsequent adjustment in the mouth.

Every practical dentist knows the vexatious difficulty usually attendant upon getting the *clasps* perfectly fitted to the teeth and plate, in such cases as I have just specified. Indeed, I have seen many such, where, I venture to assert, that a perfect, or even a *tolerable fit*, could not possibly be obtained by either of the methods *generally* pursued. This method, however, will effectually surmount all such, and the *temporary fastenings* can be put on in fifteen minutes, by a expert workman.

So valuable do I consider this method, I never venture now, in the simplest cases, to set the clasps permanently *by the model*; for, when so done, it is almost invariably found, on trial in the mouth, that they do not touch the teeth on the lingual surface—a space intervenes, which forms a receptacle for agents that must tend to act upon and destroy the tooth.

To better illustrate the foregoing description, I accompany it with a plaster-model of a mouth, and a raised plate, and clasps attached, by the *temporary fastenings*—completed only to that stage when it is *ready for trial in the mouth*, and permanent adjustment. The plate is of *copper*, gilded by the electro-galvanic process. (Comstock, Philosophy, p. 348.) This is a duplicate of one of our recent cases, and, as we regard it, one of the *difficult* ones I have specified—the fastening-teeth being the second molares, and in a leaning position, occasioned by the loss of the adjacent teeth.

Method of Stiffening their Plates.

You will observe, in this plate, an artificial *ruga* raised—it is for the purpose of *stiffening* it. It also answers the purpose of an *air-chamber*, in a degree—which of course helps to keep the plate steady and firm in its position. This ridge is made on the plaster-model, while it is yet damp from the withdrawal from the wax—by tracing on a *very thin* solution of plaster, with a small camel's-hair pencil, and afterwards trimming with a pen-knife. The idea was first suggested by Dr. Ide, of Columbus, Ohio, (Dent. Reg., vol. i, p. 209.) He uses *whiting*, but that is more liable to get off in casting. The whole natural rugæ of the mouth may be so enlarged artificially—or rather their fac-similes—in large plates, with the advantages accruing which he specifies: increased stiffness in the plate—relief of the natural rugæ from pressure—increased adhesiveness of the plate.

I know one dentist who invariably shaves his plaster models *perfectly smooth*, with a sharp knife, on their palatal surface. He thus removes every vestige of the natural rugæ, and makes his dies and stamps his plates, (very thick ones,) accordingly. This may be called the *reverse* system of practice—making *nature* subservient to *art*—fitting the mouth

to the plate, instead of the plate to the mouth. His *philosophy* is, that unless this is done, these membranous folds "will *change their position* afterwards, and throw the plate out of set." (!) Although he is an "M. D." dentist, "he ought," as an accomplished dentist remarked, to whom I related this *unique* practice, "to study his Anatomy."

The consequence of wearing such ill-fitting and unyielding plates, with broad, heavy clasps, *fitted by the model*—as I have witnessed in his patients, is, to press these folds unnaturally flat; they have to sustain a pressure which almost entirely deprives them of circulation. The gums are literally *torn* from their natural adhesion to the necks of the teeth, by this unequal pressure. Foreign deposits of food, mucus and tartar are admitted between the teeth and gums—acute, and finally, chronic inflammation of the periosteal issue is induced and established.*

* Since writing the foregoing, I have read Dr. Austen's article "On the Use of Clasps," in the Journal, (July number,) in which he urges the well-known objections to their use and inquires of the profession whether a substitute may not be generally adopted, in the employment of suction-plates.

I do not believe that the use of *clasps* for sustaining plates of artificial teeth, can ever be wholly dispensed with. The only substitute known at this time, or that seems likely to be known, is the one he proposes; and to that there are many objections to its practical use, as to properly constructed clasps. Those which Dr. A. specifies must ever remain.

I recently saw a well made upper-set, belonging to a distinguished gentleman—the fourth that he had got made, by as many distinguished dentists at the north, wherever his extensive inquiry led him to find them. It was sustained by the *air-chamber*, and held firmly; but the prominence so *impeded his articulation*, and made him so uncomfortable at all times that he was impelled to cut it out himself. He is now obliged to have the fifth piece made, and called on us for the purpose.

Again—a person who wants but a single tooth set—say a superficial lateral incisor, would not willingly be burdened with a large plate, covering the whole palatine arch, and having this *in-the-way-prominence* impeding articulation to a greater or less degree. An atmospheric-pressure plate, with air-chambers made by the *raised method* which I have specified, would, by reason of its great surface, be but little less objectionable.

One of the greatest triumphs of art, in a case where it is required to supply a defect or loss of nature, would be a *concealment* of its resource. It is next to impossible for a person wearing a full-size plate, to conceal its broad and brilliant surface from the occasional view of his associates—and those who are obliged to have recourse to art, to *preserve their good looks*, are not generally ambitious of having the fact published, either through others or themselves. This fact, calling upon the inventive faculties of man for remedy, has suggested the *enameling process*, to hide the gold from sight; and it has been practised, to some extent, in times past and present. Indeed, a *perfect enameling process* seems to me now to be a great *desideratum*, for the covering of *small plates* as well as large. But as attempts at this have hitherto failed of accomplishing the end desired, they have not been made available.

If, for a single tooth, or two or three teeth, one were obliged to wear a large air-chamber plate, with its insuperable objections, which have been stated, the remedy would be almost as bad as the loss; and, I apprehend, most persons would be deterred from adopting it, after fairly understanding the case.

Clasps, then, seem to me to be indispensable; and this admitted, our energies should be directed to *perfecting* their construction and mode of application. The *temporary fastenings* are a great stride towards this end, for most of the objections which Dr. A. urges against clasps, vanish when they are *perfectly adjusted* to the teeth and the plate.

A plate whose clasps are *set by the model*, when inserted in the mouth, and subjected to the pressure of mastication, *settles* in its yielding bed; then the clasps must neces-

By employing the artificial raised-work, a *thin* plate may be made as stiff and unyielding as one of nearly double its thickness without it. The object in this case, of which you have the duplicate, was principally to keep the plate from springing—it being very long. A ridge was therefore raised on the plaster model, much in the shape of a *Cupid's bow*, extending from the middle of the palate vault, back to the fastening-teeth. The *ornamental* is thus combined with the useful.

This simple method will be found to fully answer the purpose of that recommended by Dr. Roper of Philadelphia, to be employed when long plates are required—which is, to extend a narrow piece of plate *across* from one side of the mouth to the other, just under, and adapted to, the palatine arch.—(Harris, “Principles and Practice,” 3d ed., p. 687.) That is much more troublesome to accomplish—to get the plate and the cross-piece to set closely at the same time. I have done so, however, and in a very satisfactory manner; but best by first taking a large plate, as I would for an atmospheric-pressure piece, and, after swaging it, cutting out a crescent-shaped piece from the centre of the palatine arch. This gave the same result as fitting and soldering on a cross-piece, and with more exactness and less trouble.

To further illustrate the *raised method* of stiffening small plates, I send you also a small plate, with the two superior central incisores mounted—accompanied by the plaster-model of the mouth. This is another duplicate of one of our recent cases, and the plates were made according to the plan I have described.

Although this accompanying plate is very thin, light, and of *copper*, which is soft, you will perceive, on taking the two ends between your thumb and index finger, and testing it by pressing them together, that it is very stiff and unyielding. This is entirely owing to the artificial ridge, or *Cupid's bow*, which is raised upon it. Furthermore, you will observe, in this case, two additional ridges raised on the plate, in the shape of *crescents*, which face the concave side of the largest curves in the *bow*, and the ends of which touch it—so that both together describe an elliptical circle at that point—near the centre of the palatine vault—one on each side.

These crescents *doubly* stiffen it, and prevent still more the extremely exert a considerable tractive force upon the teeth to which they are attached, and produce evil results. But by this new method, the plate is put in the mouth and *pressed up firmly*, and the clasps *then* adjusted to the position which they will be made to assume in *practical use*. This, then, in my opinion, obviates most of the objections hitherto maintained against their use.

My opinion is further supported by the *practical results* of this method, in a practice of some years—the plates so adjusted being yet worn with perfect ease to the mouth and teeth to which they are attached.



ties of the *bow* from approaching each other, when pressure is applied to them. They were made, as they can be in most cases, by following mostly the natural rugæ of the mouth; and, indeed, the most of the middle part of the *bow* may also be made by following the *natural prominences*. In this case, the elliptical circles of the *bow* and *crescents* comprise the greater portion of the natural rugæ within their circumference. Simple as this method is, in my opinion nothing could be devised which would more effectually, and in so neat and *ornamental* a manner, add to the stiffness of a light plate. Still, the subject is open to investigation and improvement; and I hope each member of the profession will contribute his mite to the general treasury.

Nothing particular is claimed for the *workmanship* of the piece on which the teeth are mounted and clasps set—our only object being to illustrate the *method* described.

I remain, Sir,

Yours, with high respect,

C. T. CUSHMAN.

ADDRESS BEFORE THE SOCIETY OF DENTAL SURGEONS

of the State of New-York, by L. COVELL.

We have been permitted to copy from the manuscript of Dr. Covell's address, the following extracts, which we commend to the perusal of all our readers. The subject of this address, as we have before stated, is *Mutual Improvement*. This was the object which associated the dentists in our city, and gave rise to the Society, of the State of New-York. The two great obstacles which have heretofore prevented dentists from associating and communicating freely, opinions and methods of practice, have been a reluctance to ask, on one side, for fear of exposing their ignorance, and an unwillingness to communicate on the other, lest professional superiority should be destroyed, and a rivalry created, which should result to the pecuniary injury of the selfish exclusives. If it be laudable and praiseworthy for a dentist to desire and strive to improve himself, so that his operations may not only equal, but excel those of any other in his profession, and this for the purposes of benefitting, in the highest degree, his patients, and providing abundantly for himself and his own; how much more noble and praiseworthy is it to extend the benefit of his knowledge and ingenuity to his

professional brethren that the results of his wisdom and science may not be confined to the narrow circle of his own practice, but become co-extensive with that of the whole profession, and be enjoyed by the thousands who could, in no other way, have availed themselves of his superior knowledge. The extracts before us point out, and forcibly expose, the folly of allowing these obstacles to deter dentists from striving to improve by association, and mutual counsel and advice.—Ed. Rec.

“To associate and bring together those engaged in the practise of Dental Surgery, for mutual improvement and elevation, was an undertaking of no small magnitude : and that from two existing evils ; one, the unwillingness of some to learn, and the fear of others to give them instruction. Both of these evils are absurd in the extreme. If a man improves much in any pursuit after knowledge, it must be at the expense of an exposure of his ignorance. Neither is this derogatory, but commendable : and, especially so, in the practise of a useful profession. The difficulty, however, lies here ; he is already engaged in practise, and information he would eagerly seek, if merely a student, he shrinks from asking, lest it may reflect upon his ability, and result to his disadvantage. This arises from a mistaken view of facts. A man is no less a student, and a learner, when he has opened his office, than when he studied under the instruction, and in the office of another. Experience is the great schoolmaster of the professional man ; the experience of another, as well as of himself. To obviate this false notion of things, let all the members of this Society consider themselves as learners, and eagerly seek information, for the purpose of employing and imparting it.

“There are no well-informed persons who suppose that the highest possible degree of attainment has been reached in any of the learned professions. Neither is it an unsatisfying reflection, on their part, to know that the person from whom they receive professional advice is a close student, and a constant learner.

“Our greatest attainments are liable to become antiquated, and, in these days of progression, a stand-still, professional man, ere he is aware of it, will find himself a half a century behind the age. The very elements of our mental nature are for progress, and no man can make improvement, who is too proud, or too conceited, to expose his ignorance in efforts to improve. Such a man's ignorance will not remain long in obscurity ; but, thousand tongued, will proclaim itself, when too late to avert its evils.

“No persons of common sense suppose that their physician, or their dentist, knows more than all the world besides, or that professional knowledge and skill will give up the ghost at his demise. And their confidence is increased when they know that he is constantly putting forth efforts to improve. The man who shuts himself up in the nutshell of himself, will not be likely to expand sufficiently to crack his shell ; and, un-locust like, will hardly crawl out, and expand his wings for untrammelled and noble flight. To be ashamed to sit at the feet of another, an humble learner, how preposterous ? Do not suppose, however, that in these remarks I am giving countenance or encouragement to that sneak-

ing kind of practise, where persons crawl about your office, shyly and stealthily watching you, and picking up a few crumbs, and then go away, and boast of their knowledge of these things from time immemorial. These persons are ungentelemanly, professional suckers, who impart nothing, and generally have nothing to impart that they have not stolen, and, therefore, others have it before them; and who, finally, receive the condemnation they have merited. I do not call this man a student, but a filch. But a frank, open-hearted, noble-minded student, in pursuit of practical or theoretical truth, has nothing to fear in such pursuit. His course will be as rapidly upward as it is onward; and eminence and success are sure to attend him." * * * * *

The other evil to which I alluded is, the unwillingness of many to impart a knowledge of their attainments to others. They may be profoundly eminent men, both in theory and practice, but a certain fear of a competitor, or rival, makes them slow to give to others, the hand that was given to them. Or, if they were men of investigating minds,—original men, who, with limited assistance, and great research and experiment, attained their present position,—still they look suspiciously upon their fellow man, who has just commenced the rugged ascent, and refuse to assist him in his praiseworthy efforts.

"I do not insinuate that a man should throw open his office, and sit down to give instruction to every one, gratuitously, that might see fit to trouble him: but, that in association and professional intercourse, he communicate, frankly, such information as he may possess, sought for by others.

"This course of professional liberality confine, if you please, to the profession, to honest and industrious men, who have entered it, though not possessed of all the knowledge of yourself, or all that is desirable. Nothing is lost by professional liberality; nothing is gained by professional smallness.

"Do not suppose that by this course of reasoning, I would encourage any man, who could twist a tooth out of his fellow's head, to hang out his name, and then hang around your office, and dog you, incessantly, for instruction—by no means; turn such a fellow adrift with all possible speed, give him no countenance—no encouragement: for he is unworthy of either.

"But there are many persons, who, though they availed themselves of all the information within their reach; or were told by their preceptors, after a few weeks instruction, that they had sufficient knowledge to practise, yet find themselves painfully deficient, and are willing and anxious to pursue any manly course to improve themselves. Such men, if they have a genius adapting them to the practise of dental surgery, should be assisted and encouraged. We have sufficiently defined the course to be pursued, with new beginners, in our constitution and by-laws, and from which I would not depart; but the cases alluded to differ widely. We do not, in the adoption of this course, encourage every one who may think proper to *take up* the profession, but only propose to aid such as are worthy of aid; while, by adhering strictly to our bye-laws, we discountenance unscrupulous pretention, more decidedly than many who have gone before us.

"Not only would I withhold all information from those who are

already mentioned, but from all who humbug community by certain libellous advertisements. Such, for instance, as advertise 'a new and easy method of extracting teeth;' 'teeth extracted, with half the ordinary pain;' 'a new and superior material for filling teeth.' Such persons, with all of a kindred character, I would exclude from all professional intercourse. But to the man who tries to improve himself, who has been unfortunately circumstanced in his pursuit after knowledge, I would extend the hand of sympathy and assistance.

"To, elevate a profession, in its ability to benefit the public, is to increase the confidence of the public in it, and, as a consequence, its patronage.

"In nothing is it more so than in the practise of Dental Surgery. There are operations enough required for the populace, to give employment to by far a greater number of dentists than now exist; but there is a fearful want of confidence in the science itself, produced by the destructive manner in which teeth are too often treated.

"But a small portion of the community, comparatively, when they have been abused by the incapacity of their dental adviser, will go to another, and another, until they find one who understands his business; but will abandon all efforts to save their teeth, and hold the entire profession in utter contempt.

"That this is an existing evil many can testify, and to remedy this evil is, for the benefit of the public, and for the benefit of ourselves.

"There is, perhaps, no profession of greater moment to the public, and few of which they are more generally afraid.

"It is our duty, - it is our interest, to remove this unhappy impression; and this can only be done by the elevation of the profession, in its ability to do good.

"It cannot be done by any public or private attack on those who are not properly qualified, but it must be done, if done at all, by professional intercourse and assistance. By the impartation of instruction to those in the profession, and by adopting rigid and inflexible measures with reference to those coming into it."

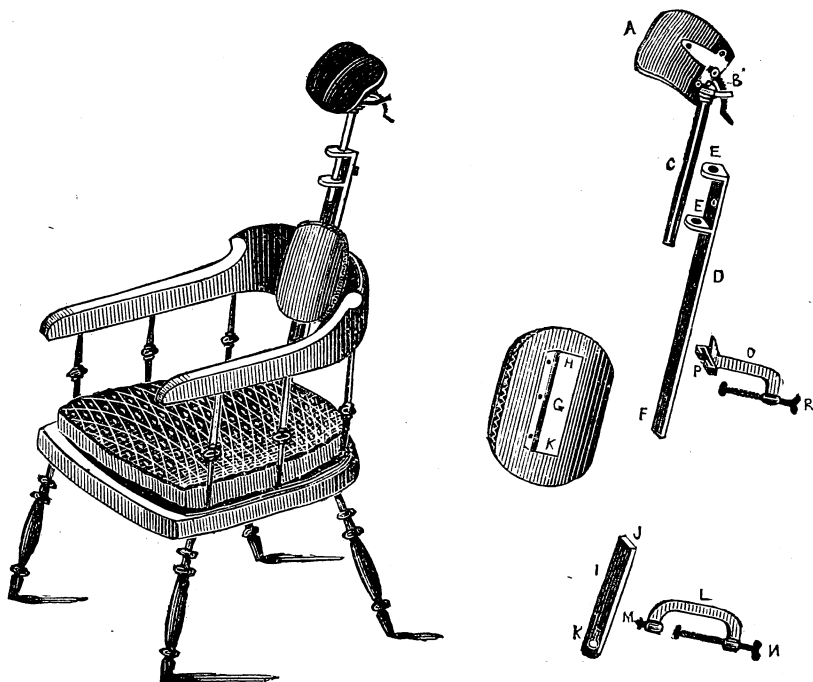
We have not space for more extensive extracts at this time.

IMPROVED FORCEPS.

Mr. Charles E. Morson, Manufacturer of Dental Instruments in New-York, has recently been making a new kind of forceps for extracting lower molars.

The two semi-circular grooves in the beaks, intended to fit the fangs, are polished smooth, and the point between them made long, and turned inwards, for the purpose of penetrating between the fangs, and acting as a wedge between them and the edges of the alveolar process. Those who have tried these forceps speak of them in the highest terms of praise and say that often, as soon as the tooth is, in the least, loosened, compression upon the handles, causes it immediately to fly out of the socket.

CHEVALIER'S PORTABLE HEAD REST.



The above cut represents an admirable apparatus for the itinerating dentist, as it is easily shipped and unshipped, occupies but little room when packed for travelling, and, when adjusted, converts almost any ordinary chair into an easy and more convenient one, for any dental operation, than one-half of the clumsy, awkward office-chairs, now in use among dentists.

Description of the Cut.

- A. The cushion to support the head.
- B. A Ratchet, by which it is set up at the desired angle.
- C. An octagon rod to slide into EE.
- P. The end of the clamp O, which slides over the bar D.
- G. A cushion for the support of the back.
- F J. The ends of the bar D I, which slide into the groove H K, meeting at G.
- M. A button on the end of clamp L, which is introduced into the eye K.
- R N. The screws, by which the whole is fastened to the chair.

The whole apparatus weighs but four and a-half pounds, and measures, when packed, fourteen inches in length, by eight inches wide. The price is \$8.

MECHANICAL DENTISTRY.

We publish, in the present number, an article from the pen of Mr. C. T. Cushman, of Columbus, Georgia, which contains much useful information upon several important points in the mechanical department of our art. We have long known Mr. Cushman, as a neat and expert dentist, both in the surgical and mechanical departments, and we recommend this article to the careful perusal of our readers.

The Single Articulating Cast is an excellent contrivance to assist the dentist, and facilitate his work, when his patient is away. It is no new thing, although Mr. Cushman and his partner may have carried the principle farther than others, and extended it to entire upper sets; but we have used it, and seen it used for years for parts of sets. We have found it particularly useful, when the teeth are worn away in such a manner as to cause those with which we wish to antagonize our artificial ones, to project further than is natural, or close up near the opposite gum. In those cases we are often obliged to economise the room left us to the utmost, and this kind of cast is so accurate that the teeth may be as perfectly fitted by it, as by the patient himself. We advise all our readers to try it, if they have not already done so.

The Articulating Blocks we have also tried, and found them useful in all the cases described by Mr. Cushman; but we much prefer single mineral teeth, when they can be procured of proper form and size. We have, for the last few years, had teeth made to our order, and keep them constantly on hand for cases of this kind. They are made as thick as the natural molars and bicuspidés, are pierced through their axis for a metallic pivot, and have a transverse platina wire inserted in one piece, forming a bow passing round the pivot-hole. When the gold pivots are soldered to the plate, the teeth may be fitted, and the back parts, on which the antagonistic teeth strike, can be ground as short as necessary while the point, or labial surfaces, may be left, as long as is required, to match the adjoining natural teeth. The backs of these teeth should not be made flat, like those ordinarily used, but rounded, like the natural ones, and when the gold backs are put upon them, they should be bent around the sides, a little beyond the centre of the teeth. A thick plate of gold should then be put upon the end, or grinding surface, of such teeth, and slightly rivetted to the pivot. Afterwards, this plate should be soldered to the pivot and the back, and the back itself should be soldered to the ends of the platina bow, and the plate in the usual manner.

We have set teeth in this way, which presented to the eye a surface half an inch long, while the back parts were so ground away that the

teeth of the opposite jaw struck up, within an eighth of an inch of the plate, and, strengthened them, in the above manner; so that they have stood years of mastication.

The Temporary Fastenings strike us as new, and, without trying them, we should say that, whenever the teeth, to which we wish to clasp, are leaning, or loosened, or in any way so situated as to prevent us from getting a perfect plaster model, they were admirably adapted to facilitate the dentist in procuring a correct fit, without which the entire operation will be a failure.

The method described by Mr. Cushman for stiffening gold plates, we do not think so well of. Our practice has taught us that plates struck up in this way, although much stiffened, are but slightly strengthened, a better way, we think, is to stiffen them by putting in a little more gold.

PROCEEDINGS OF THE SOCIETY OF DENTAL SURGEONS, *of the State of New-York.*

A regular meeting of this Society was held at its own rooms in Broadway, on the evening of Tuesday, Dec. 4th, the President, Dr. J. Lovejoy, in the chair.

After the reading of the minutes of the previous meeting, the committee, appointed to confer with Mr. James Alcock, reported that he was ready to fulfil his promise, to present an instrument case to the Society, and only waited for the committee on clinical practice to suggest the pattern and style which would be most convenient for the Dental Infirmary. The report was accepted, and the thanks of the Society conferred upon Mr Alcock.

The report of the Treasurer was then laid before the Society, and the names of those who had not paid their annual dues for 1848, 1849, ordered to be read. The Secretary was ordered to notify the delinquent members, in conformity with the bye-laws of the Society.

Essays and addresses being next in order, Mr. L. Covell, was requested to read an address, which he had voluntarily prepared for this occasion. The address of Mr. C. on the subject of Mutual Improvement among Dentists, was listened to with pleasing attention, after which the thanks of the Society were voted to him.

On motion of F. H. Clark, the report of committee "on the expediency of granting diplomas or certificates of membership," made at the last annual meeting, was called up and discussed by the Society, after which C. C. Allen moved to commit it to a special committee, with instructions to report resolutions in favor of granting either diplomas or

certificates of membership to its members. This motion was adopted, and Allen, Lord, and Chase appointed.

On motion of Mr. L. Covell a committee was appointed to revise the rules of order.

The Society then adjourned to meet on the evening of Dec. 17.

At the adjourned meeting, Dec. 17, after the preliminaries of organization, reports of committees being in order, Dr. Harvey Burdell, from the committee on "the best method of taking impressions," read a lengthy and minute report, which was accepted, and the committee discharged.

The special committee on diplomas and certificates of membership, reported the following resolutions :

Resolved—That any member of this Society, who shall present himself before a committee, to be appointed by the Society, for the purpose of examining members and candidates for membership, and who, after a thorough examination in the theory and practice of Dental Surgery, shall be pronounced, before the Society, by a majority of said committee, well qualified to assume the duties and responsibilities of a Dental Surgeon, shall, a majority of the members present concurring, on his paying into the treasury the sum of ten dollars, be entitled to a diploma, recommending him as one worthy the confidence and patronage of the public.

Resolved—That each member of this Society shall be entitled, annually, to a certificate of membership, printed from a handsome copper-plate engraving, which shall be his receipt for annual, and all other dues to this Society.

Resolved—That art. 2d, sec. 3d of the by-laws of this Society be amended, by adding the words "*Examining, or*" immediately before the words "Executive Committee," and that sec. 4th be amended, by adding the words, *and practice*, immediately after the word "theory."

It was then moved that the resolutions be adopted. Mr. F. H. Clark asked for a division, and the question being taken on each resolution separately, they were all adopted by the Society.

The committee appointed to revise the Rules of Order, reported through Mr. Covell, and after some discussion, the revised rules were adopted, and ordered to be printed, with the constitution and by-laws.

A committee was then appointed, consisting of Burdell, Clark and Rowell, to which were added the President and Secretary, to submit to the Society drafts of diplomas, and certificates of membership.

On motion, the Executive Committee were ordered to have printed 250 copies of the Constitution, By-Laws, and Rules of Order for the use of the members.

Adjourned until the evening of January 14, 1850.

NEW YORK DENTAL RECORDER.

Devoted to the Theory and Practice of
SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.

Vol. IV.

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No. 5.

For the Dental Recorder.

AMALGAM FOR FILLING TEETH.

SIR—In the October number of the Journal of Dental Science there appears an article, in answer to a letter I had the pleasure to present to you, from one of my patients, on the subject of using amalgam for filling teeth, in extreme cases. I did not think it worth my while to attempt a reply until my attention was repeatedly called to it; and for the following reasons: first. I supposed the author was rather more anxious to make a display of his abilities as a writer, and a *wit*, than to advance the cause of truth. Second. I supposed, from the silence of the leading opponents of the use of amalgam, in any and all cases, (for the last two years,) that even they had become convinced that their opposition had been carried too far; as, indeed, some of them have tacitly acknowledged.

Dr. Colburn, the writer above alluded to, after treating what I conceived to be a subject of great importance, with much levity, introduced a few cases from his own practice, which I design briefly to examine, and I think I shall be able to show great ignorance on his part, or else a deliberate design to mislead his readers. I am sorry that it is impossible to discuss this subject in a spirit of mutual forbearance and kindness, to arrive at truth; but so it is, they having always manifested a determination to treat their opponents, as prisoners, on their defence. I beg my readers to carefully examine my quotations from his article, and give them all the credit they deserve. His cases he introduces as follows:

“The first was a boy of fifteen years of age, and the first glimpse I had of the right inferior first molar, induced me to think that about one-third of it consisted of decay; but, on examination, I found it was filled with amalgam, (the pure ‘royal’ suck-’em-in,) and surrounded by decay. The filling was removed with difficulty, on account of tenderness, *it had occasioned*, and the removal of the decay *proved very painful, although the pulp-cavity was not exposed.*”

Wonderful : was it not ? A tooth of a youth, fifteen years of age, has been discovered to be tender, on removing decay from it, preparatory to filling !! and this tenderness was caused by filling of amalgam !!! and this discovery was made by H. Colburn, M. D. !!!!

Dr. Colburn has not told us that the lad informed him that the reason of his tooth being filled with amalgam, was the fact, that when so filled, it was so tender that perfect cleansing could not be borne ; this was probably, the whole truth, and should have been so reported by the lad to the Doctor, and, by him, to the profession. Perhaps they did not, either of them, think that the whole truth would have been useful in the case, and, therefore, refrained from giving it.

The second case is equally instructive, in a scientific point of view. In this, the remarkable discovery is made that silver not only loses its affinity for quicksilver, but expels it with such force as to inject it into the solid bone of a tooth, so deeply as to prevent its removal, by means of an excavator, but which *was* removed by the following means :

"I used," says our author, "a solution of Chloroform and gum copal for a temporary filling, and three days afterwards removed it, when the globules being no longer visible, and the tenderness having subsided, I filled the cavity with gold." Dr. C. goes on to state that the above tooth gave no pain for more than two weeks, when it became very sore and painful. Very likely. In his efforts to prove gold so much superior to amalgam, in this case, he had probably excavated too near the nerve, and, by that means, destroyed the tooth ; but, as this was done according to rule, the loss of the tooth to the patient was esteemed of little consequence.

Now, let us examine this subject a little. We, in our ignorance, (in New-York), have supposed that quicksilver was very apt to attach itself strongly to silver and gold, when brought in contact with them, and under that impression, have used it for the purpose of collecting particles of gold and silver, when distributed among the sweepings of a jeweller's work-shop ; but here we have a case directly opposite. In Baltimore, it seems, the quicksilver flies off from these metals, and embeds itself in solid bone. Verily this is an age of discovery, and there must be "A good time coming."

The remainder of Dr. Colburn's article is of the same character as the above, and certainly exhibits some points of interest, but does not give much evidence of a long practice, or close observation, on the part of its author.

The learned Doctor alludes to some successful fillings with gold, after amalgam ones had been removed, in proof that the amalgam fillings

were not only unnecessary, but injurious. I shall attempt to show that his inferences are, by no means conclusive.

It is a well known fact to all Dentists, of long experience, that a soft tin filling, placed within a very tender cavity, sufficiently tight to prevent the influx of external chemical agents, and yet not pressed hard enough to bear upon the pulp, will cause the tenderness to diminish, and in many cases the nerve to recede, and in a short time to allow of a much harder filling than at first.

I do not say that Amalgam will produce the same effect, but there is very strong evidence of a favorable influence in similar cases.

I have seen many amalgam fillings that have remained for years in teeth, with their internal pulps touched by decay, without the patient having suffered any inconvenience, and where I have removed these fillings, I have found the teeth as sensitive, as teeth usually are, when slightly decayed. The ultra-opponents of amalgam have published to the profession, and the world, the following statements, wholly, I think, unsupported by evidence. First. That Amalgam shrinks in hardening. Second. That it hardens by the evaporation of its mercury. Third. That it destroys the vitality of the tooth, even when the nerve is not touched. Fourth. That it makes them more sensitive. Fifth. That it is dissolved, or decomposed, by the juices of the mouth, and produces salivation.

Most of these statements have been already proved in the most positive manner untrue; others undoubtedly require a closer examination before a definite conclusion can be arrived at.

I am no advocate for the indiscriminate use of amalgam, and I am sorry for the patients of those who are. The only cases for which I recommend it are those which cannot be filled with gold, with a reasonable hope of success. Dr. Colburn, and those of his way of thinking, will ask me why? I answer, because, first, it lacks that toughness which is the peculiar property of foils; a very important objection, to my mind, as the edges of a filling, made of it, if thin, are liable to crumble away, by much pressure, leaving a depression, where decay may recommence; second, its color is objectionable; third, it undoubtedly, under some circumstances, produces galvanic action, (as, indeed, will gold and silver,) of the injurious or beneficial effects of which we are much in the dark at present, but hope to be soon, in some degree, enlightened.

It is now many years since amalgam was first used for filling teeth, and, perhaps, some thousand pounds of this material have been consumed. Is it not, then, truly wonderful that well authenticated cases are not daily exhibited, at our hospitals, and elsewhere, of the injurious

effects attributed to it; especially, when we have so many hundreds of medical men, as well as Dentists, watching for them.

The injurious effects of amalgam, if ever discovered, will, I am convinced, be entirely different from those expected by its past and present opponents. Let us hope that its known good effects will far overbalance them, and to that end let us embrace every opportunity to acquire knowledge, as to the best manner of using it, as well as other materials,

F. H. C.

For the Dental Recorder.

LATERAL CAVITY PLATES.

DR. ALLEN: DEAR SIR—In the RECORDER, vol. 4, page 64, I noticed an article written by Dr. Flagg, on the subject of "Lateral Cavity Plates." I was much gratified to learn that the plan, which I had adopted in some cases, had suggested itself to others. It must have been noticed by all Dentists, who have inserted teeth by atmospheric pressure, that when the back portion of the alveolar process is much absorbed, it is more difficult to succeed the plate by atmospheric pressure, than where it is full and rounding over, at the angle of the jaw; notwithstanding, the dental ridge may be full at the front part of the mouth, and sufficient depth to the roof. Before becoming acquainted with the plan of the "Central Cavity Plates," I had been in the practice, when there had been much absorption of the back portion of the dental ridge,—after obtaining the plaster model,—of mixing a small quantity of plaster of Paris with water, to about the consistency of cream, and with the aid of a camel's hair pencil, building up, at the back portion of the ridge, as much as I thought practicable, and when there had been a greater amount of absorption on one side than on the other, I made them to correspond; if there were some depressions on other portions of the dental ridge, I filled them up slightly. And I have noticed a marked benefit, derived from this plan. But when the alveolar ridge was nearly obliterated, I thought I saw an almost insurmountable obstacle; but by the Central Cavity, I have succeeded in every case, when,—judging from the subject,—I deemed it practicable to try. Nevertheless there are some serious objections to the Central Cavity, that have been suggested by others; and which I have found—after sufficient time to test it—to be true.

One is, the irritation which it produces in the roof of the mouths of

some individuals, and another, if you make it of sufficient depth to prevent the flesh from drawing down and filling the Cavity, so as to destroy the vacuum ; it produces a serious hindrance to perfect articulation, and in consequence of using so broad a plate, it destroys, in a greater measure, the sense of taste.

When much irritation has been produced, I have directed to fill the Cavity with bees-wax, until the inflammation and soreness had subsided.

The objection to the Central Cavity, in consequence of the flesh growing down into it, is certainly obviated by the Lateral Cavities. For, if it does grow down, it will only give the ridge that form most desirable ; and the two other objections will, also, be remedied.

In communicating the foregoing remarks, I only wish to draw the attention of others to the subject ; for, of late, I have used the Central Cavity plate, only where it seemed to be called for, from the most urgent necessity, in order to succeed, and, then, very reluctantly.

Yours, &c.,

J. C. D.

(From the Dental Register of the West.)

DR. LESLIE'S ADDRESS ON METALLURGY.

DELIVERED BEFORE THE MISSISSIPPI VALLEY ASSOCIATION OF DENTAL SURGEONS, AT ITS FIFTH ANNUAL MEETING, HELD IN LOUISVILLE, 11TH AND 12TH OF SEPTEMBER, 1849.

If we examine the discoveries and advances made in chemical science and those branches which are collateral to it, one thing is made apparent to the most casual observer, and this is the incalculable value of chemistry to the metallurgist. And not only he, but the worker of any of the metals, from the lowest to the highest. It is chemistry shows best how to unite iron. It is the same science gives us the true theory and correct practice for the union of gold. It takes the rough ore and gives the cheapest mode for its reduction. It extends the uses of the metal, when reduced, by rendering that which was oxydizable in nearly all circumstances, non-oxydizable in common circumstances. It makes copper much more plastic than man has made wax. It can gild with the shadow of gold, so that the million can cope with the millionaire in personal ornaments. This much has she done, and more ; so much indeed, that when we contrast it with the mystical ploddings of the alchemist in his processes of transmutation of iron into copper, of copper into silver, and of that again into gold. With his " processes of melting gold

in a nut-shell, dissolving gold into the palm of your hand," &c. &c., we rejoice that before our day has lived an Humphrey Davy, who could show us a metal which is lighter than, and could burn on water ; and who in his discovery, has developed a principle which has added a host of metals to the list previously known, a list now so extensive as to preclude the possibility of presenting you in the short time I am expected to occupy your attention, with even an abbreviated notice of the simple properties and history of the various metals which form it.

Metallurgy, in its most comprehensive sense, should of right share the attention of not only the dentist, but of every enlightened man. It is a study interesting in itself, and one which would afford me pleasure to enter into a detail before you ; but this is not the time for it. Estimating, as I do, your time as valuable, and applying the standard of utility to every thing we do while together, and to every thing addressed to the public eye of the profession, I cannot allow myself that freedom in diction, or that liberty with the writings of others, which, under other circumstances, it might be my privilege to do.

My purpose at the present time is to direct your attention to a special division only of the great field of Metallurgy. This division I would name Dental Metallurgy, and under this head we will pass in review those metals which we daily make use of. I shall not enter on this subject after the method adopted in elementary works, such as giving the color, specific gravity, &c., of the various metals, judging that if all are not already familiar with what may be found in every system of chemistry of modern date, that he who lacks this knowledge will there seek it. My aim shall be to give you that which is not so easily arrived at, to describe more distinctly processes, which, though often treated of, lack in the descriptions given, some of the elements of success, and to add something from my experience to that of those who have written before. As gold, with the exception of a period accompanying the discovery of iron in the metallic state, has ever held the supremacy in the estimate of men, founded upon its rarity, indestructibility, and beauty, so now we yield to it a precedence in this treatise. There is one thing worthy of remark here. This is, that in dentistry has been found the first and most extensive *really* beneficial use to which gold has been put. Of nearly every other use of it, we may say as the wise man said, " all is vanity," but of our use of it, we should confidently assert, *it* is the perfection of wisdom. History showeth not who introduced the arbitrary system of estimating the purity of gold by carats ; but its continued adoption proves the wisdom of the arrangement. Pure gold is considered as twenty-four carats fine every where, except by such as know

not what they talk of. The curious may find the following statements made in the Dental Journal, by a writer who attaches to his name, M. D., D. D. S. : "*pure gold*," he says, "is prepared by the gold beater, from twenty-two to twenty-four carats." Further he says, in reference to platina, "it throws out coloring matter when acted upon by the gums ;" silver, also, "throws out a coloring matter." Tin, likewise, "gives out the blue coloring matter." This, I need hardly say, is neither alchymical nor allchemical ; what it is I leave you to settle. For my part, I wish our journals may never reflect such light again.

The quality of gold for the purposes of plate, is a subject on which exists some variety of opinion. It has doubtless been used of so low a carat, that when united by a cheap solder, and placed in mouths which have had a tendency to disease, great injury has resulted. In particular emergencies it has doubtless been reduced as low as twelve carats, if not lower, by those who would be homœopathsists in the use of aurum, but allopathists in the use of cuprum argentum. The rule or principle which guides them is, that the less gold they can put the patient off with, the more they have ; a principle, I fear, which guides the consumer of the eighteen carat gold ; whereas the principle which should guide all is, not how poor *dare* I make it, but how pure is it possible for me to make it, keeping in view the requisite elasticity which is necessary in plate work. It was, guided by this principle, that when a student, I ardently, yet patiently, sought for a mode by which this branch of our profession might be improved. For a time I felt very sanguine of success, and met with much to encourage me. In fact, for a time I thought (as the inexperienced are apt to think too soon,) that I had accomplished all. What I sought was to discover a mode of doing the work, which would greatly diminish the amount of galvanic action, the result of which would be, less oxydizement in the mouth, and consequently a permanently clean and bright surface.

Knowing that, to produce a decided change, I must change the mode of soldering, I sought for a plan of soldering gold work with pure gold, and silver work with pure silver. This I effected by alloying pure gold for gold plate, and pure silver for silver plate, with various proportions of platina, or, in some instances, palladium. By these means I obtained an alloy, the melting point of which was above that of fine gold or fine silver. I have set numerous teeth on this material, but have hitherto been prevented from making a general use of it, from the difficulty of procuring teeth, the color of which will stand the heat requisite for the fusion of fine gold or silver. Where teeth of a white color are required, this mode can be adopted ; but where a yellow tooth is necessary, we

cannot make use of it, at least until such time as the tooth manufacturer gives us an article, the color of which is less evanescent. This is the only difficulty in the way of its general adoption, and it is one which I expect to see the skill of our manufacturers surmount as they have many others. Still, following the rule of using the best article which it is possible to make use of, when the alloy of platina and pure gold suits not, I make use of gold twenty-one carats fine, the alloy consisting of twenty-one grains of gold, two copper, and one silver, to the pennyweight. I prefer making use of the sovereign of the copper alloy; they are of the more recent coinage, and of course are reddest in color. In each one of full weight there are within a small fraction of one hundred and thirteen grains of gold, and ten grains of copper. But if the color is not red, then the alloy is most likely to be five grains of silver and five of copper, which was the old mode of alloying British gold coin. When I use the former, or copper alloyed coin, I add five and one-third grains of silver, and two-thirds of a grain of copper to each sovereign. To the same amount of the copper and silver alloyed coin, I add five and two-thirds grains of copper, and one-third of a grain of silver. Or to four sovereigns (one ounce and twelve grains when full weight,) I add twenty-one and one-third grains of silver, and two and two-thirds grains of copper. To the same amount of the other alloy, I add twenty-two and two-thirds grains of copper, and one and one-third grains of silver, which will reduce either to twenty-one carats. I prefer the English coin, because I have found it purer, and consequently tougher. If German, French, American, or Spanish coin is used, they should not be further alloyed if elastic enough, as the standard of these is twenty-one. If the gold I wish to use is good, but below twenty-one carats, I add finer coin or fine gold, and thus bring it up to that carat. If it contains too much copper, or too much silver for this to be done conveniently, I refine the gold by the process called separation. My reason for using copper in excess of the silver in alloying is, it gives, first, elasticity; second, a depth of color which I admire; third, by using this alloy, we obviate the necessity of removing the pickle-coat, which, instead of being of a sulphur color, presents a rich, pure gold-colored surface.

Further, by using the gold thus fine, I am enabled to use solder three carats finer than he who uses eighteen carats gold, and thereby the tendency to galvanic action is diminished in the same ratio, ensuring a bright surface longer, less interference with the action of the gustatory nerve, and greater durability in the work. All parts of a piece of work to be inserted in a mouth should be of the same alloy. The clasps which pass around the teeth I leave one-third thicker than the balance

of the plate. In this way, I obtain the increased elasticity which is there necessary. When the gold for clasps is made of an alloy differing from the balance of the plate, it increases the galvanic action exactly where it should be most avoided, and this is a principle which shows itself even where the carat may be the same as the plate, *if the alloy be varied*. I make the under plate of the same alloy as the upper, depending upon the increased thickness for the necessary increase of strength. So of all the backings for the teeth, and mountings for the springs, they are all *one quality*. Unity is the rule I am guided by, and perfection is my goal, and although we are still far short of it, science will show that although the advantage may be but small in favor of twenty-one carat gold over eighteen, and of eighteen carat solder over fourteen, still it is appreciable, and therefore desirable.

In alloying, to do so correctly, it is necessary that the silver and the copper should be perfectly pure. The copper I make use of, is the best English bell wire, the toughness of which is proverbial, which property it owes to its purity. The form of it is also very convenient for cutting and weighing. When placing the copper in the crucible, care should be had that it will sink with the gold, which it is apt not to do when cut in lengths greater than the diameter of the bottom of the crucible on the inside. I generally roll it in a coil of a smaller diameter than the crucible. If this precaution be not taken, the copper is apt to remain suspended above the gold, and be oxydized and volatilized by a high heat, for contradictory as the statement may be of the books, it is a fact of which I can give the best proof, viz: That copper does melt at a higher heat than even pure gold. It is also a fact, seemingly contradictory of this, that when united to gold, it reduces the melting point of that metal; but this is not the only instance in which the melting point of an alloy is less than the mean of its constituents. The silver I alloy with, is what is known among refiners as grain silver, which is generally pure. The pure silver, for convenience in weighing, is granulated, by pouring it in a small stream into a vessel of water, hence its name. When such silver cannot be conveniently had, I would select such coin as, after ignition, shows little or none of the black oxide of copper on its surface. Such I find easiest among the old Spanish coin and some of the French. These, when rolled down thin, may be used conveniently.

As a general thing I have little trouble in melting gold for plate. Wherever proper care is observed with the fillings there may be no call for the refining process, unless, indeed, you have the misfortune to meet with a counterfeit coin, the manufacture of which is now brought to

such perfection, that nothing short of separation will detect some of the issue, or remove the injurious alloy from your plate with ease or certainty if they have been added to it. The materials which most generally get into the filings and injure the plate, are lead and zinc from the metallic model and matrix, or tin when it is used for these purposes, and iron from the necessary regular and continued wear of the file. The latter may be entirely removed by the use of a small horse-shoe magnet. Care should be taken to remove all oxide from the surface of the metallic model and matrix before putting on the plate, as it is more likely to pass in, in the form of oxide than in the metallic state. They should also be kept at some distance from the lap skin. When either lead, tin or zinc is present to a large amount, the alloy should be kept in the furnace at the melting point without any flux on it, which would have the effect of protecting the base metal from being oxydized and volatilized. Where lead is present in gold, when it passes into the hands of the refiner he pursues this course, only varied by using a muffle furnace in which to heat, and a cup made of bone ash instead of a crucible of silex and clay. One or the other mode is rendered necessary when lead is present, owing to its diminished affinity for oxygen when at a low heat, (such, for instance, as the heat of the sand bath used in separation). It is consequently slowly dissolved in the separating process; indeed a coating is soon formed on the gold, which partially arrests the action of the acid on the silver and copper. When tin or zinc are present in small quantities, it is not necessary to expose the alloy to the volatilizing action of the fire before separation, as their affinity for oxygen at a low heat is greater than that of lead. Another substance which will always be found mixed with our filings, is gypsum; this, however, presents no difficulty, when a good heat can be had, and sufficient flux is added.

The mode I pursue in melting my plate, is first to separate all the scraps of the former melting I can conveniently pick out of the filings, knowing with certainty that they are good. I next run the magnet through the filings and remove all the iron. By this picking process I gain two points; first, if oxide of lead or zinc or either of them unoxydized be present, the less gold with which they are combined, the more exposed are they to the action of oxygen, and second, if any other substances be in them which would render it necessary to have recourse to the process of separating, it will require a much less amount of acid to accomplish it than if the whole mass were made inferior by adding the scraps. As a flux, I add to every five or ten dwts. of filings, as much

pulverized nitre as will lay on a quarter dollar ; these I thoroughly mix and place in a small crucible.

The scraps and additional coin I place with a small piece of borax in another crucible, and place both in the fire at the same time. After the filings are perfectly melted, I either pour the gold into an ingot, or allow it to cool in the crucible, which I then break and test the gold by a few hard blows, which if it stands without cracking, is of course fit to be added to that in the other crucible. If, however, it is not good enough and I think by fluxing I can make it so, I place it in a clean crucible and try the effect of heat without flux, which I follow by adding flux after one hour's steady heat. If this does not suffice, I lay it to one side to be purified by acids, considering the labor of the humid process much easier than that of the dry, when a piece of really coarse gold falls into my hands. It has also the advantage of being the only certain mode of arriving at the desired effect.

In melting gold and silver, much depends upon having a good heat. To procure this I prefer using the draft furnace. This is one in which the bellows is dispensed with, and the necessary air for the combustion is supplied by the draft of a good chimney. These furnaces are generally built of brick, their form is commonly square, the space for the fuel may be six inches square, and nine inches in depth. For the last three years I have made use of a furnace somewhat similar to the tooth furnace, which I much prefer for many reasons. The length of this article advises me not to enter here into a minute description of either form ; but should a fitting opportunity present I may enter more into detail.

The proper fuel for melting gold is coke, which when good is solid, heavy, and of a steel grey color. It is particularly adapted where a long continued heat is required. The proper fuel for silver is charcoal, owing to that metal's great affinity for sulphur, prohibiting the use of coke. The best charcoal made in the west is formed of the elm and sugar tree timber. When charcoal is used for a long heat, there should be placed on the bars of the furnace a piece of fire brick two inches square, on which the crucible should rest. If it is a small one, it is safest to set it in the lower half of a large one, both of which should be set on the brick. This allows of the renewal of the fuel without shifting the crucible. The cover of the crucible should never be iron, as scales of its oxide are apt to drop into the gold, the bottom of a crucible or another reversed makes a better cover. There are two kinds of sand crucibles brought to market. One, which is of a bluish shade and partially vitrified, showing there is present a goodly portion of oxide of iron in the clay used in their manufacture ; owing to this they do not

stand the variations of temperature as well as those made from a purer clay. The latter kind are of a yellow or brown shade, and have my decided preference.

There is no call for the black lead crucible in our operations. They are of advantage only when a constant melting is kept up, they being capable of standing seven days steady heat of a powerful furnace, but support poorly the variations from hot to cold, or the reverse. They are also easily decomposed by an alkaline flux.

I have elsewhere spoken of separation. This is one of the modes of purifying gold, and the one which I would say (knowing thoroughly all other modes), is best suited to the dentist's use in rendering pure a piece of inferior gold. It is the mode by which, in general, gold is prepared by the professional refiner for use in the various branches of art to which pure gold is applied. The process is based upon the property possessed by gold of resisting the action of nitric or sulphuric acids, while the baser metals with which it is usually adulterated are dissolved by either. Separation, by means of nitric acid, is comparatively ancient, while that by sulphuric is quite modern. Refining by means of sulphuric acid was introduced by M. Diz, while inspector of the French mint some years ago. By its means, some mammoth establishments in Paris retain the business of refining nearly all the bar silver which passes from both Americas, the deposits in some of the mines being aururets. Its chief excellence is said to consist in its power of separating a quantity more minute than can be effected with the nitric acid. This, I consider doubtful. By means of the cheapness of sulphuric acid, combined with the perfect arrangements of very costly apparatus which returns to them nearly all the acid, together with their forming all the copper dissolved from the alloy into the commercial sulphate, the Paris refiners are enabled to refine large quantities of silver, rich in copper, and receive only the copper as a remuneration—to such perfection have they brought this branch of art. Still, although possessed of these and some other advantages, it is not in any way calculated for our purposes. The apparatus necessary for the nitric acid process is simple and cheap, and so far as the purity of the gold is concerned, is equally successful. The process consists, first, in melting the gold with three times its weight of silver. Less than this amount, say twice its weight of silver, may answer, when the gold contains five or six pennyweights of copper in the ounce. While this alloy is in a state of fusion, it should be stirred with a rod of fire clay, previously brought to a red heat, else gravitation will be found to have made one portion of the alloy richer than another, and

consequently make the separation difficult. Immediately after this, it is to be removed from the fire and granulated. This is commonly effected by pouring it in a small continuous stream into a large tub of water, moving the crucible round in a circle, to prevent the grains adhering. Some years since, I introduced a more convenient and perfect mode of performing this operation. I make use of a common sized wooden pail which I fill with water. Above it, is placed another without a bottom, its end fitting tightly into the top of the lower one. About three inches above the water, I bore four holes through the sides of the upper one. In these are fitted tightly four round peices of wood, (1-2 inch in diameter,) these project into the interior of the vessel, and form a support for two or three tiers of round wood, (old rose-bush branches are best,) crossed on each other so as to form meshes, none of which are opposite each other. On this the metal is poured from a height of about 18 inches. The result is an extreme minute division of the metal, which allows of a quicker and more perfect separation of the alloy. The granulated alloy is next placed into a bottle, technically known as a flask, no part of which should be much over 1-16 of an inch thick, that it may stand the changes of temperature. The bottom should be nearly flat, from which the upper portion should rise in the form of a funnel, the mouth being 1 1-2 inch in diameter. The metal may be easily removed from the bucket and slid into the flask with a spoon. To accelerate the action of the acid, use is made of a sand bath; a convenient one may be made of a small shallow sauce-pan, in which place an inch of sand; in this the bottom of the flask is to be set; the heat may be applied by means of a charcoal furnace.

The inexperienced in refining are frequently baffled by procuring an inferior article of acid. For refining, the acid should be pure. In particular, it should be free from muriatic acid, with which the aquafortis commonly sold as nitric acid is mixed. It also frequently contains sulphuric acid, from both of which it may be separated. The first must be removed before refining can proceed; the second presents little difficulty. The test to show the presence of and a reagent for the removal of muriatic acid, is a solution of silver in nitric acid, or a solution of lunar caustic in water. When this is added, if muriatic acid be present, there is instantly formed an insoluble chloride which is precipitated; the reagent should of course be added slightly in excess. The test for sulphuric acid, is a solution of the muriate of baryta; when this is added, if sulphuric acid be present, the sulphate of baryta is immediately formed. The method of purifying acid on a large scale, is to re-distil the

crude article. The nitric acid should not be placed on the alloy of the full strength at first, but should be used in the proportions of two parts acid to one of water, for the first two portions; the third may be used the full strength. It is customary in text books to name the time the successive portions of acid should remain on the gold; instead of this, I would advise its being kept on as long as there is any action present, which is known by the disengagement of nitrous oxide which escapes in the form of red fumes from the matrass. When this ceases renew the acid, unless when it ceases from the silver being all dissolved and the gold consequently purified, which fact is known by its presenting a uniform dark brown color, which is raised to the true gold color by annealing.

Care should be taken in pouring off the acid to allow only the clear saturated solution to escape, as at times some portions of gold will become so communitated as to float in it when agitated.

For the precipitation of the silver from the solution, there are two modes practiced. One is, to precipitate by means of sheet copper; in the other, by means of muriate of soda, (common salt). For either process, the solution is diluted by adding twenty parts of water to one of solution. In the first process, the silver is deposited in the metallic state; in the other, it is thrown down in the form of a chloride. The proper vessel for the first mode, is a stone-ware jar; into this, place the diluted solution, and in it place a piece of stout sheet copper as long as the jar and two or three inches wide. The silver will soon be seen to attach itself to the copper, and as it accumulates it will slip to the bottom, exposing the copper for a new deposit, until all which it will remove has been precipitated. There is still a small trace of silver in it, which is thrown down in another vessel in the form of chloride by means of the salt, muriate of soda being the most delicate test for silver we possess. The chloride in this second vessel I allow to accumulate until there are a few ounces, when I bring it to the metallic state by a process to be described. The silver precipitated by the copper may be rendered perfectly pure by throwing it on a filter and washing with warm water until all traces of acid leave it; it may then be melted with borax and granulated, when you will have a supply of the best silver for the purpose of alloying which can be had. If you should still fear the presence of acid in the silver, melt with salamoniack, the alkaline properties of which will neutralize the acid. If it is not convenient to procure copper, you may adopt the chloride mode. For this purpose a wooden vessel (in the absence of a stone one,) will answer. In it first place the

requisite amount of water required in diluting ; in this, dissolve the salt in excess ; you may then pour in the silver solution, when the insoluble chloride is immediately formed. When the precipitate has fully settled, the liquor may be run off with a syphon, before doing which it should be tested with salt. The chloride should next be thrown on a filter, and the nitric acid washed out with warm water ; it may next be thrown back into the vessel or a small stoneware dish. Into the wet chloride must now be placed zinc, either in the form of granules or strips, (the latter I prefer,) a little sulphuric acid is then to be poured into the vessel and mixed by stirring. The decomposition of the zinc with the liberation of hydrogen gas which results, effects the decomposition of the chloride of silver which it leaves in the metallic state. The chloride is known to be all decomposed, when it is entirely changed to a dirty yellow color, the former being pure white, if not subjected to the action of light. Care should be taken that all the zinc is dissolved, before melting the silver ; for this purpose, the sulphuric acid should be used in excess. The silver is next to be thrown upon the filter, and the sulphate of zinc washed from it ; it is then ready to be melted with borax or salamoniac. Another process, which may be convenient for a small amount is, to allow the washed chloride to lay on the filter until it dries ; with it mix one third its weight of pulverised carbonate of soda ; it is then to be placed in a crucible and reduced in the furnace.

If at any time it is desirable to test the quality of a piece of gold plate, the easiest mode of doing so is, to take twelve grains of it, to which add thirty-six grains of silver, and melt them on charcoal with the blow-pipe, the resulting button may then either be hammered or rolled out thin and placed in a thin two ounce vial, or small flask if this is convenient. The acid may then be applied as before described. If you have bought as eighteen carat, gold which is really so, you will have as the result of your experiment nine grains of pure gold, provided you have conducted the operation with proper care. Whatever the amount is which a half pennyweight yields, double that and you have the carat of the gold. If gold foil has been poorly purified, the presence of the smallest trace of silver may be detected by dissolving a leaf in nitro-muratic acid, if there, it will be found at the bottom of the vessel in the form of chloride.

Of the remainder of dental metallurgy, I am pleased to say little need be said, the more so as this essay already far exceeds the limits within which I expected to embrace the few thoughts here presented.

As to whether there should be one or two metals used in forming

casts, and what these should be, there exists (it may be with good reason) some variety of opinion. Some there are who consider block tin suitable both for model and matrix; others prefer the type metal matrix and zinc model, while the great majority make use of a lead matrix and a zinc model. This last has my own preference. I use the zinc model for its hardness, and the lead matrix because it adapts itself to the model. Whichever mode is adopted, the metal should be stirred and the oxide removed. This is of particular advantage to the zinc. When first melted from the block it should be stirred with a stick, the combustion of which is of benefit in purifying it from the oxide which forms in its interstices which result from crystalization. If type metal is desired, it may be made after the common mode by adding to your lead one third its weight of antimony. Leaving these we will pass to the last of the metals we shall now consider.

Throughout the entire circle of our operations we are constantly reminded of the importance of having instruments constructed of good steel, and properly tempered. And the fact, that we are frequently compelled to repoint excavators to adapt them to peculiar cases, necessarily forces us to acquire a knowledge of the manufacture of steel, and the best modes of tempering it. Steel, you are doubtless aware, is a carburet of iron, the compound being formed by placing bar iron imbedded in ground charcoal in an oven shaped furnace, and raising the heat gradually to 100° Wedgwood, at which it is kept for six or eight days. There are three kinds of steel known in commerce, under as many different names. Blistered steel is the carburetted bar iron just as it comes from the furnace, and presents on its surface numerous blisters, which are attributed to the bursting of vesicles of carbonaceous matter. The next quality is known under the name of *shear* steel, from the fact of its being used in the manufacture of shears for dressing cloth. It is formed by binding several bars of the blistered steel together, heating to the welding point, and subjecting them to a process of tilting, which condenses the particles from which results greater toughness, and a susceptibility for a higher polish. The third kind has been introduced at a comparatively recent date. It is known under the name of cast steel, and is used in the manufacture of the best cutlery, surgical and dental instruments, fine files, and the best mechanical tools. In its manufacture, the blistered steel is broken into fragments, which are placed into a crucible and melted and cast into ingots, hence its name. It is susceptible of a higher polish than the shear steel, but must be worked at a lower heat. A good article of cast steel, when fractured presents a

fine grained surface, entirely similar throughout. The addition of 1-500 of silver to steel, is said to render it susceptible of a higher polish and keener edge.

The addition of iridium and osmium to iron, forms a compound which may be tempered, and is less liable to oxydize than iron or steel. In working steel, an important point is, to make it as soft as it possibly can be made before filing; this is best effected by making a fire of soft wood over the objects to be softened, and allowing them to remain in the ashes until perfectly cold. The mode I adopt for repointing an excavator is, to heat it in the flame of an alcohol lamp, and by means of a pair of very long beaked pliers, also heated, I bend it to the desired shape while in the flame. In hardening and tempering steel, water is most generally used; some cutlers prefer oil, while some die sinkers make use of naphtha, which, having no oxygen in its composition, the chances of injury are somewhat diminished. The mode I pursue is, to heat an inch of the point of the excavator to a bright red (generally by means of the blow-pipe,) and quench immediately in cold water. This, if the steel be good, makes the point nearly as brittle as glass. It requires next to be tempered. In tempering steel, the workman is guided by successive colors, which a bright piece of steel assumes when subjected to a gradually increasing heat, each of which colors indicates a different degree of hardness, and he with certainty selects the temper suited to the work, by selecting the color indicative of it. By some operators, nine different colors are distinguished. They have four shades of yellow, from a faint to a brown yellow, two of purple, and three of blue. If we resolve these into three shades, I think we will be in possession of the variety required by the dentist. These would be a bright yellow, a purple, and a full blue. The first for large pointed excavators and scalers, the second for small ones, and the third for pluggers and forceps. After hardening, the next step is to polish the point so as to show the changes of color, (the easiest mode for the dentist is to rub it on the oil stone.) The instrument I then place in the flame of the lamp, allowing the polished portion to project beyond it. Close by the flame stands a tumbler of water, into which the instrument may be instantly plunged, as soon as the desired color presents. The color of course shows itself nearest the flame first, and gradually reaches the point, which is the spot the eye should rest on. The first color assumed is the yellow, (the fainter the yellow the harder the instrument,) next the purple, followed by the light blue, the full, and the dark blue.

Such, gentlemen, although a somewhat tedious, is nevertheless a very condensed, view, not of the entire subject allotted to me, but simply a

division of it. My desire is, that there may be something contained in it which will prove of value to you. If this is gained, my object is attained.

DEATH FROM CHLOROFORM.

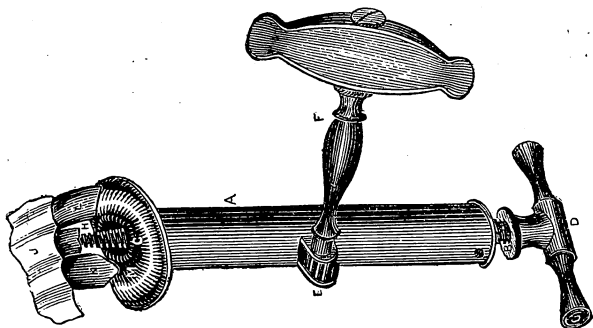
The following melancholy case of death, in a dentist's chair, from the use of chloroform, is taken from the *London Lancet*, and is another instance showing the folly of administering this agent in trifling surgical operations. Let those who have applications from their patients to administer this dangerous article first read to them this extract, and few of them will persist in their request afterwards :—

“ At the meeting of the 16th of Oct. last, a letter from Dr. Confevron of Langres, brought before the Academy of Medicine of Paris a most appalling case of sudden death during the inhalation of chloroform. Madame Labruné, thirty-three years of age, mother of a family, in robust health, and of a nervous and excitable temperament, had been subjected to anæsthesia by Dr. Confevron, a twelvemonth ago, for trifling surgical operations. On the 23d of August last, this lady requested her dentist to remove a large molar tooth, and as she was apprehensive of the pain, she would not consent to the extraction unless she were placed under the influence of chloroform. As the dentist was not accustomed to this agent, I (says Dr. Confevron) was solicited, both by himself and the patient, to administer it. ‘ Though I felt unwilling to use anæsthesia for operations of little importance, especially since the painful accidents which had occurred in very clever hands were made public, I thought myself justified in deviating from the rule I had laid down these eighteen months, and I conceived that the previous successful administration of chloroform to the patient was a guarantee of the safety of a second trial. I had, besides, made up my mind to produce a very slight numbness, since the operation was not important, and the pain very short. I placed, therefore, on a handkerchief a small pledget of cotton wool, of the size of a nut, and moistened it with less than fifteen minims of chloroform. Madame Labruné held it herself to her nostrils, and breathed it at a little distance, so that the surrounding air might freely mix with the anæsthetic vapors. In eight or ten seconds the effect became apparent, by the blinking of the eyelids. I then made a sign to the dentist that he might proceed to operate ; but the patient, who had experience in anæsthesia, not thinking herself sufficiently insensible, pushed away the hand of the operator, and making us understand by signs that insensibility was not complete, she brought the handkerchief nearer to her face, and made rapidly four or five more powerful inspirations. At that moment I removed the handkerchief myself from her face, and lost sight of her but just to put it on the table, and when I glanced at her again the face was already pale, the lips discolored, the features shrunk, the eyes sunken, the pupils horribly dilated, the jaws contracted so as to prevent the dental operation, and the head thrown backwards. The pulse was gone, the limbs were in a state of complete resolution, and a few inspirations at long intervals were the only signs of life. Everything was done to revive her for two hours, but without success.’ ”

NEW YORK DENTAL RECORDER.

FEBRUARY, 1850.

DR. C. S. DICKINSON'S SCREW, FOR THE REMOVAL OF FANGS OF TEETH.



A—Tube, or cylinder.

B—Screw, passing through a tube, or slide, having a back, which is moved up and down by the pinion E, and within the tube A.

D—Handle of the screw.

F—Shaft to the pinion E.

J—Portion of the jaw.

K and L—The teeth, between which is the stump H to be extracted.

M—An India Rubber cushion for the adjoining teeth to rest upon.

In an English work, entitled "Anecdotes of the Steam Engine," the different methods of opening a bottle, from the most primitive one, that of breaking the neck, down to the latest and most approved cork screw, are shown by wood cuts, for the purpose of illustrating the progress of mechanical inventions and improvements.

On looking at the above beautiful instrument, constructed by Mr. J. D. Chevalier, which is the latest and most elaborate piece of mechanism for removing fangs of teeth, we were struck with the similarity of improvements in instruments for getting at the contents of a bottle, and for the removal of aching teeth. Without asserting that the object was the same, we may safely say that the result of the early attempts to extract teeth must often have been as fatal to the tooth as the above method (fracture of the neck) was to the bottle.

The next improvement, if we recollect, was to pry out the cork by the aid of a common fork, inserted on one side of it. This is the single

elevator of the Dentist. An improvement upon this was the insertion of a fork on each side of the cork, with the head of the patient—we beg pardon—the bottle, between the knees of the operator. This is the double elevator, or first idea of the forceps. Afterwards came the screw with the button to assist in drawing, by giving a rotary motion to the cork, and last, the present improved double and twisted corkscrew for the sideboards of the upper ten.

We are told, that while he was the guest (*patient*, we presume) of one of these notables, Dr. Dickinson, witnessing the ease with which his host extracted the cork from a bottle of claret, with one of these dainty corkscrews, and the pleasure, instead of pain, which the operation imparted to all present, first conceived the idea of adapting this principle to an instrument for extracting fangs of teeth. The result is before us, and will undoubtedly prove effective in causing the *claret* to flow if it does not produce the same pleasant emotions which resulted from the use of the corkscrew.

We have never had an opportunity to test the utility of the above instrument, but doubt not that it will answer an excellent purpose, in those cases in which the screw is a proper instrument to use. Both the inventor and the maker have shown ingenuity and skill in its construction, and we shall award to them all the praise, until we hear of some rival patenting the thing at Washington.

EVANS' AMALGAM.

In the London Lancet for June, 1849, we first saw Mr. Evans' new amalgam announced to the public, and in the July number of the News Letter there appeared another letter from Mr. Evans, recommending this compound of tin, cadmium, and quicksilver, as "the best filling hitherto used in those cases where amalgams are thought to be useful." Accompanying this last letter was a circular setting forth the "*peculiar virtues* of this compound," and fixing the price of the article, prepared by Mr. Evans himself, at *five dollars* for each package containing *one and a half ounces*. Notwithstanding this apparent attempt to make money out of the pockets of his professional brethren, we could not but compliment the liberality of Mr. Evans in making known to the profession the materials of which his compound was composed. In this matter of publishing new things we shall always give credit and be thankful for the smallest favors. Mr. Evans, when writing the above letter, was so

confident of the "peculiar virtues" of his amalgam that he declared with emphasis that he *knew* it was not deleterious.

This high recommendation, coming from one so generally known and esteemed as Mr. Evans, induced almost every dentist in America to wish to try the new amalgam, and the first in the market was immediately exhausted at the above exorbitant price, and still the demand increased. Cadmium was sold as high as four or five dollars the ounce until, for a time, it could not be had for love or money.

In the mean time, the October number of the News Letter was published, containing another communication from Mr. Evans* in which he expressed himself somewhat less confident of the "peculiar virtues" of the new compound than in the first. What he *knew* before, he now begun to doubt, and from the following letter, published in the January number of the News Letter, we perceive that his doubts have ended in complete skepticism.

MESSRS. JONES, WHITE & Co.

GENTLEMEN :—In my last communication, I gave the result of my experiments with the amalgam of tin and cadmium up to that date. The result has not been as satisfactory as it seemed to promise in the commencement.

The deep yellow color, I mentioned as having observed in some cases beneath the filling, upon removing it, caused me to fear it would not be durable. Since which time, I have examined some of the early cases in which I employed this filling; some have entirely failed, while others are apparently doing well. In all the cases, the filling upon the surface appears to retain its color. Finding it to differ so much in different cases, I am induced to regard it as at least an uncertain article. I do not feel satisfied to use it, even as an expedient, under such circumstances; having no confidence myself in its durability, I do not feel justified in recommending its use to the profession.

In regard to its merit, as compared with the various other amalgams, time will be its best test.

My experiments some years ago, with this preparation, were not sufficiently protracted to enable me to discover the phenomenon that I have recently observed; nor were my means of observation so extended, as they have been latterly, from the fact that my experiments were discontinued at that time. I was induced to believe, at a very early stage of my professional career, that all preparations for filling teeth in which mercury entered as a component part, were objectionable, which I believe is the opinion of many of our American dentists; indeed, there has always existed more or less prejudice in the public mind, against mercurial preparations.

It was not until I had been in Europe some time, and had found that the practice of filling teeth with amalgams was so universal, that I was

* This letter was also communicated to, and published in, the Dental Recorder.

induced to resume my experiments with the preparation. Believing it to be better than those amalgams in general use, I hoped it might prove of some utility to the profession, and also, that humanity at large would be benefitted by it.

THOS. W. EVANS.

Paris, Dec. 11, 1849.

We are not so wedded to any kind of amalgam as to take less pleasure in publishing this last letter of Mr. Evans, than we did when copying into our pages the first; our only aim being to ascertain the truth upon this, as upon every other subject connected with dental surgery; but we cannot but regret that Mr. Evans has not seen fit to inform the profession in what cases, if any, he deems the use of any kind of amalgam admissable, in what cases he has used his own compound, and in what class of cases he has observed "the deep yellow color," or whether it exists in all teeth filled with this material. We regret this, because there are *some* dentists in America who have learned to think for themselves, and to distrust the authority of even the greatest among them, preferring rather to have all the circumstances, facts, or symptoms, and then judge as their own reason and experience dictate.

If there is any moral to be drawn from the above facts, it is embraced in the homely adage of the lamented Crocket: "Be sure you are right, then go ahead." We have not yet condemned nor recommended the new amalgam, and we shall not do either until we have summered and wintered it. In this matter we intend "to speak that we do know, and testify that we have seen."

THE ALVEOLAR PROCESS.

We have received a letter from one of our correspondents requesting our views as to where the form of a rough and uneven alveolar border can in any way be improved. We copy the following from his letter:

"An acquaintance of mine out west, who is also a dentist, and with whom I had some conversation about eighteen months since, suggested the idea to me of building up the low places on the cast, but in a very obscure manner, for he is one of those dentists who holds every new idea that he gets as a great secret." * * *

* * "I saw a lady after she had worn about a year a set of upper teeth which he had made. I had previously extracted the teeth for her, and about three months after she went out west, and being a sister of his had her teeth constructed by him, which she has since worn with satisfaction, and I know that her gums, at the expiration of three months, must have been rough and uneven. When I saw them, however, they were as even and perfect as you could prepare a model for a fancy piece. He says *he can take any mouth, however rough and uneven, and make it perfectly smooth.*"

The cast of this lady's mouth showed that it had been filled up on the alveolar ridge, especially at the back part, but he would not give any information, any further than I could find out by looking at the cast, unless I would pay him *one hundred dollars*, which I did not feel disposed to do. Thinking upon this subject since, the question has occurred to me, whether the form of the mouth could be improved in this manner? I have merely suggested these ideas for your consideration, as your leisure or taste may dictate.

Yours, very truly,

J. C. D."

Now we are inclined to believe, that if our correspondent had examined this matter a little further and investigated it more thoroughly he would have come to the conclusion that all the smoothing and evening which this alveolar ridge had undergone, during the fifteen months after the teeth were extracted, was owing to the absorption of the prominent points, and not by any filling in, or increase of either flesh or bone, in the lowest or most depressed parts. By filling up the cast in the low places before striking a plate upon it, a number of chambers would be formed in which, when worn, a partial vacuum could be produced by suction. This would cause the plate to press harder upon the prominent points of the gum and bone beneath, and as pressure always produces absorption, this process would go on faster when such pressure was excited than if the plate fitted more accurately to all the inequalities and sinuosities of the jaw.

When we are about to insert a temporary set of teeth we always form the plaster cast as nearly as possible to the shape which the jaw would naturally come, if left a year without any plate or teeth. This we do by trimming the points off and also by filling the hollows corresponding to the sockets, and we carry this as far as we can without endangering the fitting and adhesion of the plate. This insures a good form to the jaw when healed and absorbed, as the formative vessels are left free to deposite as much new matter in the hollows as their natural physiological function will admit of, while the absorbents, in the prominent points, are stimulated in their action by the pressure produced by the plate.

It is truly surprising how much the gums and maxillary bones are absorbed by the pressure of an ordinary pair of spiral springs exerted upon them. An old lady came to us some years since, who had had neither tooth nor remnant of a tooth in her mouth for more than twenty years. She desired a double set, and on examining her mouth we found the superior alveolar border and roof of the mouth as flat as the palm of the hand, while on the lower jaw the border was quite prominent, especially in the front part. We fitted a double set for her, and after vainly attempting, for some time, to wear them by suction alone, a weak pair of spiral springs was attached. After this she wore them with great com-

fort for several months, when she again called, complaining that the lower plate produced considerable soreness on the front part of the jaw. On examining the mouth we were surprised to find that the alveolar border in this part was so much absorbed that the edges of the plate were cutting into the soft loose parts, both sides of the bone. This absorption continued to go on until the teeth became much too short and antagonized in a very different manner from what they did when first worn, notwithstanding the great length of time which had elapsed after losing her natural teeth and before the plates were fitted.

Building up the low places in the plaster cast before fitting the plate is, therefore, no doubt, a good plan, as it leaves nature free to work under the plate, and deposite as much new matter, where the teeth have been removed, as she would do if no plate was worn, but we do not think that any amount, more than this, of *healthy* gum or bone can be induced by this or any other process.

DENTAL VISITOR.

This is another dental periodical intended to disseminate popular information upon the teeth, dental operations, and, as is frankly avowed by the editor, Mr. Charles Merrit of Bridgeport, Ct., for the purpose of advertising his own operations. The first number is full of instructive and entertaining articles mainly upon dentistical affairs, and from this specimen and the knowledge we have had of the editor, both as a man and a dentist, during an acquaintance of several years, we hesitate not so say that it will be the means, if continued, of doing great good wherever it circulates.

SPENCER'S DENTAL DRILL.

The attention of our readers is called to the advertisement of this drill on our advertising sheet. It is recommended by many of the best dentists in this country. We have not had an opportunity of testing this instrument in the mouth, but judging from appearances should think it might prove useful in many cases. Messrs. Dietz, Brothers & Co., manufacture a very beautiful and substantial instrument which will not be liable to get out of order for a long time.

"To Dentists."—The attention of our readers is called to this advertisement on our advertising sheet.

NEW YORK DENTAL RECORDER.

Devoted to the Theory and Practice of
SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.

Vol. IV.

MARCH, 1850.

No. 6.

For the Dental Recorder.

CASES OF IRREGULAR TEETH.

BY W. H. ALLEN, NORWICH, CONNECTICUT.

DEAR BROTHER ;—Having had several complicated and difficult cases of irregular teeth to treat in my practice, and been solicited by professional friends to publish them in the Recorder, I have finally determined to give you, as near as I can, a description of a few of the most interesting, with my mode of treatment, and the success attending it, premising that I claim nothing particularly new or meritorious in the methods pursued for reducing them to regularity. Some of the following cases you will recollect as having come under your own care during your professional visits to this place, the treatment of which was carried on by me while you were away, and my acknowledgments are due to you for several valuable suggestions which were of great service to me in bringing them to a successful termination.

Case 1. Miss R—— C——, age sixteen, in 1841. In this case the lower teeth were very much crowded, and four of them, on the left side of the mouth, including the central incisor projected anterior to the corresponding teeth in the upper jaw.* The second bicusped was extracted from each side of the lower jaw and the teeth, one at a time drawn back into their natural position. This was affected by first fitting a gold band, with clasps attached to the anterior molars, passing round a little back of the teeth to be moved, and having a small ivory block attached on each side, for the antagonistic teeth to bite on, so as to permit the lower incisors to pass back under those of the upper jaw. From this band, ligatures of India rubber, extended around each tooth requiring to be moved and soon brought them back to the gold band. It was

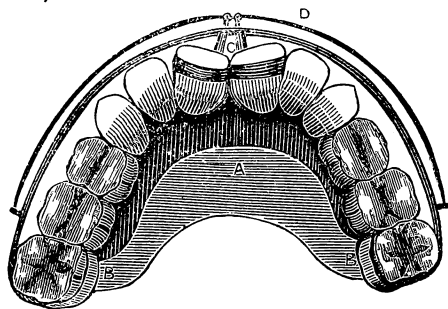
* Several years previous to this we had been consulted about the crowded state of the teeth in the upper jaw. The eye teeth were then just coming in considerably above their natural position. Two bicuspides were extracted from the upper jaw, which allowed the canines to come into place, had the two corresponding teeth in the lower jaw been extracted at the same time the irregularity might have been prevented; but this the child would not consent to, and her parents had not the heart to enforce it.
[ED. RECORDER.]

necessary then to keep the apparatus on until the teeth became firmly set in their new position. The operation altogether occupied about four months, and was eminently successful, the teeth remaining in good position until this day.

Case 2. W. M——, a lad, age about fourteen, in 1842. This was a very bad case, the right central incisor shutting inside the lower teeth, the fang having a knee shape bent near 45° ; and the right lateral incisor directly behind it, and very far in towards the roof of the mouth. This irregularity was remedied in the following manner; two caps, with strong clasps attached were fitted to each anterior molar, and to these clasps a thick stiff piece of plate was attached, passing round in front of all the teeth. A gold band was then fitted round the central incisor, having a screw soldered to its front side, and passing through the plate in front of the teeth. A nut attached to this screw, outside the plate tightened a little every day, soon brought the tooth forward into its proper position.

The lateral incisor was brought into place by means of ligatures of India rubber attached to it, and tied in front of the plate. The plate was worn about three months, since which they have remained in a natural position, except that the teeth are a little crowded, which might have been prevented if he had consented to the removal of one of the bicuspedes as I advised.

Case 3. Represented imperfectly by the following cut, was a young lad aged ten years, in 1845:



The two central, and superior incisors, stood with their approximating sides turned very much towards the inside of the mouth, and the outer sides towards the lip, and the lateral incisors projected too far forward. To bring the laterals into place, a plate (A) was made to fit the roof of the mouth fastened by clasps (B) to the first molars; ligatures were attached to this plate, and tied round the laterals, by means of which they were soon reduced to their proper position. I then soldered the two

ends of a gold plate—extending outside the teeth—to the clasps on either side. Bands of gold were fitted round each of the front incisors, with a wire two lines long (c) projecting from the front side and passing through a slot in the outside plate; I then tied ligatures of India rubber, from the ends of these wires to pins fastened in the outside plate, far back, near the clasps; these produced a rotary motion in the teeth which soon effected their regularity. About two months were required to finish and since then they have remained good.

Case 4. Irregularity of the teeth in both jaws of a young lad, aged thirteen years. This was a very uncommon and complicated case, the teeth in both jaws being much crowded, and *ten* in each, requiring to be moved, some of them to the extent of three lines. The accompanying drawings (Figs. 1 and 2.) show the state of the mouth, when the patient was confided to my care.

Fig. 1.

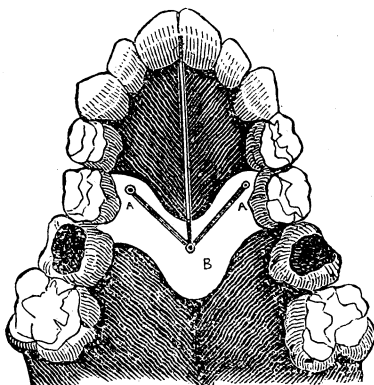
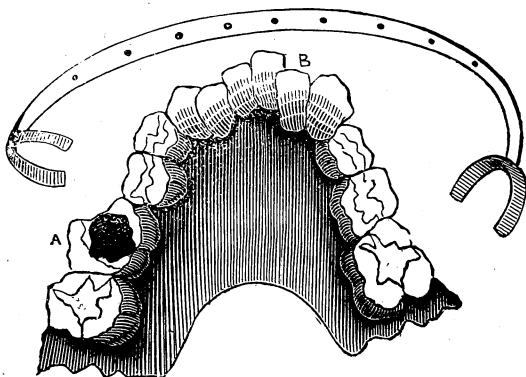


Fig. 2.



In the superior maxillary, the anterior molars of each side were much decayed, and it was found necessary to remove them. By this means, sufficient room was afforded for the remaining teeth, when they should be reduced to their true position. In order to obtain more space for the tongue—which important member it is necessary should move as free from impediment as possible—I was obliged, not only to enlarge the space between the *teeth* of the opposite sides of the mouth, but also to express the whole *alveolar process*, of the upper jaw.

To effect this, a plate of gold (see Fig. 1) following the palatine arch, which was very deep, from one side to the other, was affixed to the bicuspides of each side by clasps. This plate was so made, that when attached to the teeth, it should constantly press them, and the alveolar process outward, towards the cheeks. To keep up a constant outward pressure, two gold wires were attached to the plate with hinges at A. A. meeting and forming nearly a right angle at B. where was fastened a strip of caoutchouc, which, being passed between the median incisores, drawn tight, and fastened, produced the double effect of widening the palatine arch, and of pulling back the incisors, which projected too far by three or four lines. This apparatus was kept on, and occasionally tightened, for several weeks, when, in addition, I soldered each end of a thick gold plate, about three lines in width, and long enough to extend outside the teeth, from the bicuspides of one side to those of the other, to the clasps of the former plate. This passed outside of the teeth in a true and regular arch, and being pierced with holes opposite each tooth, they were easily reduced to their proper position by means of ligatures of caoutchouc, carried round the teeth, and fastened outside the plate. This being done nothing remained, but to keep the teeth in their new positions, until they became firm, which necessarily occupied several weeks, on account of the complication of the irregularity.

The inferior jaw was necessarily treated in a somewhat different manner, in consequence of the interposition of the tongue; the process was quite simple, however, and very effectual. Finding the first molar (A.) of the left side too far decayed to admit of being filled, I extracted it; the lateral incisor (B) of the right side was also removed, on account of the crowded state of the teeth. A plate of gold (see Fig. 2.) was then fastened by means of clasps, to the large molar of the right side; and to the second bicuspid of the left, which, by its own elasticity, spread the teeth of each side sufficiently, in a few weeks. Holes being punched through this plate opposite each tooth, ligatures of caoutchouc, were applied as upon the upper jaw, and kept on until the teeth assumed a position to antagonize properly with those in the upper jaw, and had be-

come firm, the plates were then removed, and the young lad returned home so much altered in appearance (see Figs. 3 & 4*) as to be hardly recognised by his parents. The whole operation occupied about six months.

Fig. 3.

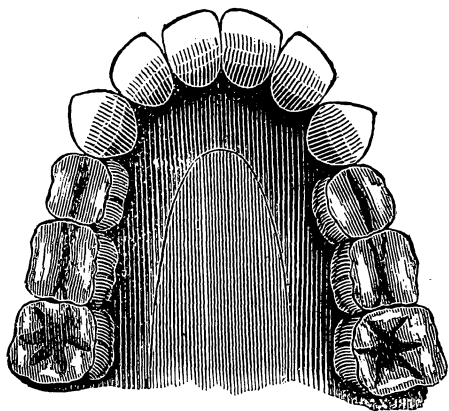
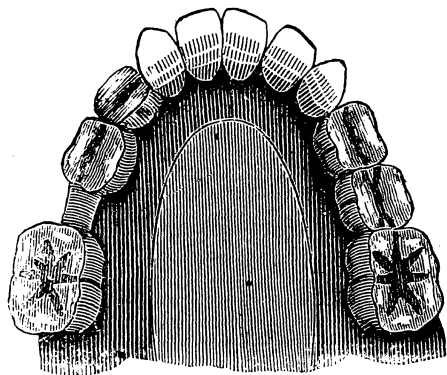


Fig. 4.



I was called upon a few years since to regulate the teeth of a young lad which had been made to take a wrong direction from the habit of constantly sucking the thumb, which had remained with him from infancy. The boy was in the habit of sucking it at all times of day and night, and could not be broken of it until the gold plates for regulating his teeth were put in his mouth. Previous to this the thumb had been poulticed and besmeared with everything disagreeable which could be thought of, such as aloes, red-pepper, rhubarb, assafœtida, &c., &c.; but all without effect, for he would soon get to liking them, and then would become a greater sucker than ever, but after the plates were put on he soon got over it, and then the greatest difficulty was overcome.

The above cases are more important and have required more time, and patience to reduce to regularity than any which have occurred in my practice since you left this place; if you consider them worthy you are at liberty to publish them in the Recorder.

Norwich, Conn., December, 1849.

* The artist has failed to do justice to the castings of the mouth, taken after the operation, from which the above drawings were made. The arch of teeth in the lower jaw is more than an eighth of an inch wider at the bicuspid than is represented in the cut, and there is still a small space left between the bicuspid and molars in the upper jaw, about equal to the difference between the size of natural bicuspid and those represented in the cut.

DR. C. H. DUBS' SCREW FORCEPS---MR. CHEVALIER'S COMMUNICATIONS.

To the Editor of the Dental Recorder.

DEAR SIR:—As my previous communication, based, as I thought, on uncontrovertible facts, has been made the basis of an article from the pen of Mr. John D. Chevalier, in the December number of your excellent Dental Journal, it becomes my duty to respond, which I will do briefly, and with the more pleasure as I am able to make Mr. Chevalier plead both sides of the case, and his only difficulty will be—as I shall constitute him Judge as well as Counsel for both parties—to decide what credit should be given to contradictory evidence. I cannot, however, agree with Mr. Chevalier's sentiments, that any such topic is “insipid and profitless” to your readers, as I am most fully persuaded that the readers of your scientific standard periodical are all, not only lovers of truth, but also science, and have the proud sense of justice which always awards honor and credit where both are so justly due as in the case of the invention of Dr. C. H. Dubs.

I copy a single paragraph entire from Mr. Chevalier's communication in your Dental Recorder of December. He says:—

“In December 1840, passing through Wheeling on my way to New Orleans, I called on Dr. Hullihen, who, amongst other instruments, showed me a forceps with a screw between the beaks, which he had himself made from an old forceps, and substantially the same as that now in use, and on which I made the improvement; he expressed a wish that I would make some, which I did shortly after my return home, in the Spring of 1841, and in compliment to the inventor, named them Hullihen's Screw Forceps. So much for the paternity of the original instrument.”

In such language, word for word, does Mr. Chevalier plead his side of the case. But by calling on Dr. Dubs I was politely put in possession of Mr. Chevalier's plea on the other side of the question, equally strong, direct and lucid, besides having the advantage of an earlier date. It is a letter from Mr. Chevalier to Dr. C. H. Dubs, which I copy exactly, word for word; and, with the same care I have made the foregoing extract from your Journal. I have all of Mr. Chevalier's letters written to Dr. Dubs before me, as well as copies of those written by the latter to the former, and among others the copy of that to which the following is an answer:—

Mr. Chevalier's Letter to Dr. Dubs.

“New-York, Nov. 22, 1848.

“DR. C. H. DUBS.—Dear Sir:—Your favor of the 31st October was sent to me last week by Mr. Hewitt. I did not answer it immediately,

expecting to have time, in a few days, to collect sufficient facts to convince you that I am not infringing on your patent right, (as I take it for granted that you have one, although you have not given me the date of it,) but I regret to say that I have been so much engaged, that I could only make enquiries amongst my workmen, as to the time they made the first ones, with a ratchet and spring, and find that it was early in the winter of 1847. The first one was made by my foreman, who assisted me to construct it. I had never heard of yours, nor did I know that you had, or claimed to have made any improvement in that instrument, until last Spring, when I received a newspaper in which I saw your advertisement. I did not secure a patent for the improvement because I did not deem there was any great merit in it, especially as the idea of notching the bolt of the screw, and putting a catch to hold it in its place, when screwed into a stump, had often been suggested to me by Dentists—among others I can mention Dr. C. C. Allen, now editor of the New York Dental Recorder. In conclusion, the instrument in question was constructed as above stated, and I cannot relinquish the right to make and sell it.” Yours, very respectfully,

“JOHN D. CHEVALIER, 184 Broadway.

The uses I make of this authentic, positive and direct letter, on the part of Dr. Dubs, are—that he had filed his caveat and an accurate description and specification of his invention, many months before the time specified in Mr. Chevalier's letter, to wit: “*early in the winter of 1847.*” The specification embodied in the Letter Patent taken out by Dr. Dubs is the same as that embodied in his caveat, entered more than a year previous to the date of his patent in the office of the Commissioner of Patents at Washington City, which caveat as effectually secured the right of invention as the full letters patent.

I was sorry to find among gentlemen such suspicions derogatory to moral honesty and sincerity, as are discoverable in the remaining portion of Mr. Chevalier's communication in the December number of the Dental Recorder. It is a continuous attempt to create the impression that every movement of Dr. Dubs, even down to the purchase of the common instruments of his profession from Mr. Chevalier, was connected with his improvement of an instrument he has since patented, as if he was purloining, by peacemeal, the improvements of others to incorporate into his own. Now, this is the farthest possible from the truth, and it requires twice as much ingenuity to urge this view of the case as to exhibit and sustain the real facts of the case. Mr. Chevalier had the whole truth of the matter before him in the communication of “Mississippian,” together with some testimonials which the fairness and candor of the Editor of the Dental Recorder induced him to add from another source. Why should he then attempt to insinuate that Dr. Dubs, at that late date he assigns, in his movements “begins to look like

making an improvement," when he, (Chevalier) "was then making the instrument?" See how reconcilable every movement and every purchase of Dr. Dubs are to his own assertions and his own history of his invention? The uses of his patented forceps are, in the very description and specification in the patent office, confined to the incisor and canine teeth, or the roots and stumps of such. The molars are beyond the reach of the screwing process, and will not admit of the direct outward pull which makes the operation of the compound union screw forceps such an easy and painless matter. Thus the purchase and use of the "two pairs right and left forceps," furnish no argument against the existence of the invention *then* any more than *now*, as Dr. Dubs still has those identical forceps and still uses them in extracting the stumps and roots of the side teeth. Dr. Dubs sent on for "Dr. Hullihen's Screw-Forceps of the extra first quality," because he had heard of it and wanted to know if he had, in his invention, unwittingly trenched upon Hullihen's ground. Mr. Chevalier sends on a Hullihen Forceps, without any thing being said of his having any improvements to it in the summer of 1846. Dr. Dubs received the Forceps he sent for, but behold he finds no spiral spring in them as the Dental Journal had described Hullihen's to have; and he therefore sends on—according to Chevalier's quotation, in February 1847, some mention of the spiral spring. Mr. Chevalier's ungenerous assertions (*proofs* he calls them!) that Dr. Dubs in 1846 "had nothing that he deemed suitable for extracting roots of teeth," because he sent for "right and left stump forceps," an "extra screw," and a remark about "a spiral spring," are, to say the least, of the most unwarrantable character, and, if retaliation were the law of gentlemen, would certainly provoke it. The first absolute date which Mr. Chevalier gives to a public display of his improvement upon Hullihen was the Boston Fair of September 1847. But Dr. Dubs certainly had his description and caveat in the Patent Office months before that! In 1846 when Dr. Dubs sends on for one of Hullihen's extra first quality forceps, he receives one without any of Chevalier's improvements. The Catalogues of Mr. Chevalier sent out in 1847 and 1848 contain no notice of any improvement of the kind—I have them all before me—and it is not until the Catalogues sent out in 1849 that I find the words "Hullihen's Screw Forceps improved by J. D. Chevalier." This is a year and more after all of Dr. Dubs' rights of invention were secured to him.

In the correspondence of Mr. Chevalier with Dr. Dubs I find such expressions as these;—under date of July 1848: "I have no objections to humor the idea of your patent, provided I have the making of them.

I have plenty of them ready made, and have sold nearly one hundred since I improved them." Again, same letter: "I will promise you that I will not make any with the thumb piece, without your permission."

I have materials enough, Mr. Editor, before me, to make up a large batch of suspicions that instrument makers generally have got so much into the habit of improving instruments by the suggestions of others, that they have almost forgotten that a patent secured any rights to the inventor; but I will not follow an unfair and disingenuous example. I close by merely remarking that Mr. Chevalier's opinion that the "thumb piece" of Dr. Dubs' instrument would tear or injure the lips is utterly untrue. For the teeth the instrument is made for, there is no possibility that it can come in contact with the lips, and so Mr. Chevalier would know if he had seen a single operation with it. I still sign myself, as before, although I have not a single objection to Mr. Chevalier's knowledge of my name,

A MISSISSIPPIAN.

Natchez, January 9, 1850.

A NEW AMALGAM.

To the Editor of the Dental Recorder.

SIR:—I noticed a short time since, in your Recorder, an article from the pen of Thos. W. Evans, taken from the London Lancet, in reference to an amalgam for filling decayed teeth, viz: a preparation of tin and cadmium. I like exceedingly, the ground taken by the Recorder in giving to all its patrons the result of the experiments and experience of the older members of the profession; of sowing broadcast any information calculated to benefit the great mass of practising Dentists. Now I am well aware that there are those in the profession, who brand all who use in any way, or under any circumstances, materials in a plastic state, for filling decayed teeth or parts of teeth, as lacking professional honesty, or being unskillful.

That there are certain circumstances which warrant the use of some soft filling, whether Hill's, Evans' or some other, is admitted by many at the present day, who have, in our opinion, some claim to professional honesty. In consideration of the above, without saying more, I wish to submit to your readers the following preparation, which I have, in certain instances, made use of, viz.: an Amalgam of gold, tin, prepared cadmium, precipitate Silver, and chemically pure Mercury. The Silver and Mercury well triturated together, then add the Tin, Gold, and Cadmium. After which the mass may be pressed between layers of porous Buckskin until

all the surplus Mercury is removed. The object of submitting the above, is that it may be fairly tested, and the result given to your readers. It has the advantage, as far as tested by me, of being anti-corrosive in itself, and not discoloring the tooth, two great objections against the old amalgam of Silver and Mercury.

Yours, &c.

D. C. M.

From the Dental News Letter.

TREATMENT OF DENTAL PULP PREPARATORY TO PLUGGING.

BY J. D. WHITE, M. D., DENTIST.

Of False Toothache.—Acute sensibility, by striking against the crown of the tooth with an instrument, especially upon the face, and in cases of teeth that have more than one root, striking upon the cusps opposite, and in the direction of the roots separately, will lead to a correct diagnosis, which is inflamed, or which is acutely affected. This precaution should never be omitted, as it is often that only one root of two or more is diseased. A seeming elongation of the tooth from the socket, and more yielding motion than in healthy teeth in the same mouth; these latter symptoms may be more or less marked, proportionately to the *hyperemia* and thickening of the periosteal membranes, and an absence of pain by passing an instrument into the pulp cavity, together with an insensibility to pain by applying cold to the parts.

Of Sympathetic Toothache.—This may happen to teeth which are wholly sound; but often they are found to have undergone some morbid change, such as recession of the gum from the neck of the tooth, or irritation of the external membranes, excited by salivary calculi, slight decay of the dentine, erosion, or defective in some way or other. On account of the fact, that pain is so frequently experienced in very sound teeth, and in remote parts, such as in the temples, top of the head, ears, and even the shoulders, it would be unpardonable in an operator to extract an aching tooth, until he had formed his diagnosis from the most positive signs, that the pulp was really exposed, or it was the actual seat of the disease. Upon this point, we have occasion daily to exercise the greatest precaution. I will be pardoned for digressing, to relate, at this point, a very remarkable case. Master T., of Chester County, aged fourteen years, was brought to me two years ago, from school, suffering very much at times, and especially at night, with pain in the temples, and in both of the superior front incisors, which were partially decayed, but not more than half way from the surface of the enamel to the pulp

cavities. I was requested to destroy the nerves and plug them, or extract; any thing to get rid of the pain. Upon examination of the mouth generally, I discovered that the nerves were exposed in both of the first inferior molars. I directed their extraction, which was acceded to, although they had never been the site of pain, nor had they been suspected as being in any way connected with the patient's suffering. The front teeth were plugged without any trouble, and there has not been any of the former symptoms experienced since.

Treatment of the Dental Pulp.—The treatment of the exposed pulp has given rise to great difference of sentiment among well-educated dentists; but mainly about the *means* which should be employed for that purpose, agreeing, pretty generally, that it is bad practice to destroy it entirely. But as well might we expect to procure a healthy function of the *rete-mucosum*, when denuded of the *epidermis*, by substituting one of our own invention, as to procure a healthy function of the pulp, when deprived of its natural protection—the bone. The various modes of treatment, which have for their object the preservation of the pulp, must be of that order. When the pulp becomes exposed by decay, or any other cause, the delicate vessels which ramify upon its surface, are soon ruptured, as well as those which passed into the bone which have been destroyed; they pour out blood and serum, which must have exit through an external opening, or inflammation supervenes, and in a short time establishes a suppurating surface. Any attempt to remove this pathological condition permanently, by medical or mechanical agents, must of necessity prove ineffectual. Notwithstanding, this seems to be the language of reason and experience, it is the object sought to be obtained by most practitioners in Dental Surgery. I would consider this to be an invariable truth, that *so long as the artery continues to convey blood to the pulp, so long will there exist the necessity for an external opening, effusive, or suppurating surface*, unless the inflammation becomes so violent as to produce a slough of the whole pulp.*

By Astringents and Capping.—This is a mode of treatment much extolled by some dentists. Dr. Fitch remarks, "I think the best practice will be, and is, to unite both, as I am in the habit of doing, which is, use the astringents for some time, and then cover the nerve with a cap of lead or gold plate, and complete the filling of the cavity with gold. If this practice be adopted by the dentist, he will often save the tooth." Yet he frankly admits, that, "in many cases it entirely fails." Now, if

* I would refer the reader for a more full discussion of the physiological and pathological considerations of the teeth, to an address delivered by the writer, and published in "Stockton's Dental Intelligencer," vol. 2, No. 9, July 1st, 1846.

the cap could not save the tooth before the astringents were applied to the pulp, how could it do so afterwards? The therapist teaches, that the effect of an agent that does not destroy the vitality of a part to which it is applied, is of very short duration. Astringents do not in these cases destroy the vitality of the pulp; then, of course, it may return in a very short time to the same condition in which it was found, before the astringents were used, (nor would the cap be necessary to protect it from pressure,) and give rise to all those dreaded evils which would have followed the application of the cap in the first instance. Professor Harris, of Baltimore, with his usual candor, in speaking of the above method of treatment, says, "It is not recommended as infallible; and while I declare, it has been more successful than any other that I have tried, candour compels me to add, that it has failed in more instances than it has succeeded."

This is about the success with which the writer has met, in adopting the above plan of treatment, *or any other method which has for its object the preservation of the vitality of the pulp*. I think I hazard nothing in asserting that as great a number may be saved without any preparatory treatment whatever, if the pulp be not actually pressed upon by the stopping, as by the above described plan.

By Cauterization.—This is a method which has been highly recommended, as a means of destroying the pulp, by some writers, (*Kæcker* and *Maury*,) the last cited author, observes, "We have pursued this plan for fifteen years with uniform success." I believe the reason why Mr. Maury met with so much success is, that in the use of the cautery, in any form, the vitality of the pulp is destroyed, and most generally removed more or less from the tooth, especially when the hot wire is used. Sometimes the cold wire is thrust down the roots of the tooth so far as to be stopped by the diminished size of the canal, and with a rotary motion the blood vessels and nerves are crushed off between the hard instrument and the walls of the canal; and in this way it is, also, removed far down in the root. The more there is removed of the pulp the better; for if only the minute extremity of the artery be left, it will contract and retract with more energy than if it were divided into numerous small branches; it is, also, distributed extensively over and through the pulp, and forms one of its principal constituents. When the pulp is exposed by removing the decay, and no matter how carefully, blood and lymph will ooze out immediately, and continue for an indefinite length of time, defying the permanent effects of astringents; but if it be removed as far down in the roots as a small instrument can well be passed the bleeding will cease in a few minutes, or hours at the farthest, and it

is not of much importance in a pathological point of view, whether this be done by thrusting into the roots a hot or a cold instrument; the pulp is destroyed in either instance, and this is the principal indication to be met in the treatment. We can, and justly too, compare the exposed pulp to a small and extremely vascular tumor, the mere puncture of which would establish an irrepressible hemorrhage; but cut away the whole mass, and one single act of *torsion* upon the main trunk would immediately arrest it. From my experience, the *actual* cautery is the best means of destroying the pulp, where it can be properly applied, as in cases of the roots of the front teeth, where it needs but one or two applications to remove the whole pulp; and I can affirm, with Mr. Maury, that I always succeed in my treatment of a tooth, where I can apply it properly; but I seldom use it now, except in front roots, preparatory to setting teeth on pivots; and the gum does not swell after the operation, as is common, when this method of supplying teeth is resorted to. Inflammation does not often follow the proper application of the actual cautery, if it is not too large, and applied too often; but if it comes in contact with the walls of the internal cavity, and be retained there for an instant, it will exalt the temperature of the root so much as to inflame the alveolo-dental membranes, (and of course, abscess *may* be the result,) it therefore requires great care in its application. Some merely "*touch lightly*" the pulp, so as to produce an *eschar*; in so doing the whole pulp in many cases becomes highly inflamed, and causes intense pain, because the eschar or shriveled spot acts to contract the remaining and living part of the pulp, in a similar manner, as if it were grasped with a small pincer, or were pressed upon by a plug; besides the deadened part acts as a foreign body, and produces inflammation.

If in such cases, the entire pulp be removed or destroyed, the pain ceases. Mr. Bell, of London deprecates the use of the actual cautery, as well as all corrosive acids. He says: "The first and speedy effect of their application is to produce extreme inflammation in the membrane, (*he means the dental pulp,*) with such intense suffering, as to demand the immediate removal of the tooth." He abandons the use of any agents, therefore, which have a tendency to destroy the vitality of the pulp, as improper; and recommends a method of treatment by *stimulants*, which I would be pleased to continue in my next.

"WANTED."—The attention of our readers is called to this advertisement on the last page of our advertising sheet. It offers an eligible situation to any young man desiring a situation in the office of an established dentist.—[ED. RECORDER.]

From the Dental Register.

DENTAL SCIENCE.

DR. TAYLOR,—DEAR SIR.—During a recess in our late meeting in Louisville, the question was agitated :

Has dental science attained to the highest degree of excellence of which it is susceptible ? Has it been carried as near to perfection as its votaries should hope and strive to place it ? At that time I thought it more prudent in me to hear than to speak ; but the question has frequently recurred to my mind since, and I feel disposed to say something on the subject at present, more especially because my views differ materially from any that I have ever heard publicly expressed on this point. While some insist that the science of dentistry, (so far as filling teeth is concerned) has not made any advancement, since Hudson blistered his hand in using foil of unusual thickness.

And that so far as the insertion of teeth is concerned, the plan of inserting Porcelain teeth on gold plate, admits of no improvement, at least so far as the character of the materials employed are concerned, and that all that is left for the dentist of the present day to do, is to follow in the footsteps of his illustrious predecessors. Others flatter themselves that the indomitable energy and boundless enterprise, guided by the revelations of chemistry, of aspirants for distinguished and superior excellence in dental operations will ultimately advance the science so far beyond its present circumscribed limits, that the decay or loss of the teeth will, in reality, be no loss at all, except in a pecuniary sense. In other words that the art of filling decayed teeth will attain such a degree of perfection, that both the appearance, utility and durability may be secured in their pristine integrity ; and that artificial substitutes will be inserted on an improved plan that will secure very nearly, if not all the advantages to those who may have occasion to employ them, that accrue to those who are so fortunate as to retain their natural teeth.

Now the result of my own speculations and calculations differs widely from both these extremes, (as I regard them.) Though Dr. Hudson doubtless filled some teeth in the best possible manner, and with the best possible material, that does not prove that the art or science admits of no further improvement. If the pioneer settlers in our western country succeeded in raising large crops of sound corn on the rich virgin soil of the Miami bottoms, does that prove that the science of agriculture admitted of no further improvement, even in the cultivation of this important product ?

On the contrary, abundant crops may now be raised on lands that at that time were thought to be not worth cultivation ; and the quality of

the soil may be annually improved under a judicious course of treatment, instead of rapidly exhausting it as the former method of cultivation was calculated to do. And I doubt not likewise that many diseased teeth may now be treated with decided success, that Dr. Hudson and his contemporaries would not have attempted to treat at all, and that all the common operations that occur in the practice of dentistry can be performed as well in every respect, (and in much less time) by hundreds of dentists throughout the country, as they were performed by those eminent and estimable men who first labored to advance and elevate their favorite art to the advantageous position that it now occupies, and in regard to the insertion of artificial teeth. Though the use of porcelain teeth, mounted on gold plate, should never be superceded by materials better adapted to this purpose; still the method and style of constructing and applying them has been so greatly improved already, that I doubt whether the individual who first employed these materials, if he could see a specimen of the most perfect workmanship in this department now in use, would have the assurance to lay claim to the invention. But whether human ingenuity and research will ever be able to invent or discover any materials better adapted to supply the wants of the dentist—to preserve or supply the place of the natural teeth, or not. I have no doubt but important improvements may still be made in the modes of operation, in the construction of instruments, and also in the skill, dexterity and precision with which they shall be employed.

But before all those advantages can be fully realized, the human constitution must be more perfectly developed and equally balanced, and this will be calculated to do away the necessity for many of the operations that would otherwise be required; and render permanent many that would otherwise be frail and require frequent renewal.

So that the science of dentistry can never be advanced to the highest degree of excellence and perfection of which it is susceptible, otherwise than by the employment of means, that must of necessity, prove fatal to its existence.

And to me, the enterprise appears far more practicable and probable, that means for the effectual preservation of the natural teeth will be discovered, and thus put a most effectual stop to the further progress of the dental art, rather than that it can ever be brought to such a degree of perfection as to enable those who practice it, to compete successfully with the handi-work of nature; besides being a much more desirable consummation, even if both were equally easy of access. I hope I shall not be regarded as recreant to the highest interest of a profession of which I claim to be an humble member, or of a science of which I pro-

fess to be a votary, when I declare that I regard it as one of my most important and indispensable duties as a dentist; to inquire diligently, to ascertain as far as practicable, and point out as clearly as possible what are the best means of preserving the teeth from decay; and arresting the various diseases to which they are liable in their incipient stages.

In other words, I regard the relation that I bear to my race, as taking precedence of that which I bear to the fraternity of dental surgeons; the former was bestowed on me by the Creator without any choice or volition of my own, the latter was voluntarily assumed, the former must continue while man exists on earth, the latter will of necessity shortly terminate.

And farther I claim not only connection with, but an interest in posterity; and if I can aid in conferring on the future representatives of that interest, a sound constitution, or even a perfect and permanent set of teeth, I should contribute more towards the promotion of their real advantage, in such a boon than in the bestowment of pecuniary treasures beyond computation. However others may regard such a sentiment or principle, I declare most candidly and unequivocally that my chief inducement to pursue the labors of a dentist, is not the acquisition of wealth, (though I trust that I estimate the advantages of wealth at their sure value,) but because I believe that I may contribute more to the general welfare of our race in this, than in any other employment by which I could secure a competence for the support of myself and those dependant on me; and if it was in my power to do so, most gladly would I avert the necessity for any further dental operations, by giving to every individual of our race a sound and perfect set of teeth, with the disposition and skill necessary to preserve them in such condition. But this may not be done instantaneously, but I believe may be effected gradually, not by directing our attention exclusively to the teeth; but by bestowing the necessary care on the whole constitution together. And I regard the opportunities enjoyed by dentists for forwarding this great and glorious enterprise as being equal, if not superior to those enjoyed by any class of men in existence.

M., OF AUGUSTA, KY.

From the Dental Register.

DISEASE OF THE GUMS FROM A DECAYED TOOTH.

BY SAMUEL GRIFFITH, D. D. S.

Mr. B., of Barnwell, C. H., Barnwell District, South Carolina, consulted me, in June, 1831, on account of a disease of the alveolar process of the lower jaw, of five years standing. The patient was in a most

wretched condition. He carried the head on the left shoulder, the right side of the neck being so much swollen as to be on a level with the point of the right shoulder.

On carrying the finger into the mouth, which required considerable force, I found the teeth covered with a thick coating of brown tartar, the gums in a high state of inflammation, spongy, and bleeding on the slightest touch. The only tooth that had any appearance of decay, was the first molar on the left side, and it was in this that the disease had commenced. From this point to the dens sapientia of the right side, purulent matter issued freely from around the necks of all the teeth. Sounding the last named tooth, produced a sensation in the patient like that of an electric shock. Pieces of the alveolar arch had exfoliated, and beneath the right wisdom tooth was a portion of the jaw bone partially detached; it was an inch and a quarter long, and about a quarter of an inch thick, partly porous and cellular, partly solid. The immense swelling of the neck did not contain any matter, but seemed to depend mainly upon inflammation of the glands and cellular tissue.

The disease, as I learned from the patient and his physician, was of five years duration, having resisted all the efforts of the best medical talent in the country. An immense amount of matter had been discharged during this time, and from having been a stout, athletic man, Mr. B. was reduced to an extreme degree of feebleness.

June 15th. I began the treatment by extracting the wisdom tooth of the side,* and removing as much of the tartar as could be reached conveniently. This operation was extremely painful, and had to be desisted from very soon. I prescribed a mild astringent wash for the mouth, to be used frequently, and gentle cathartics to keep the bowels open.

June 23d. I saw Mr. B. again. The swelling of the neck had very much diminished, the head was more erect, the mouth could be opened more easily, and there was less inflammation of the gums. I cleansed the teeth still further, and removed three pieces of bone from the alveolar arch. Continued the wash for the mouth, a little stronger than at first, and directed the cathartics as before.

July 2d. Mr. B. called on me again. Swelling of the neck and inflammation of the mouth quite gone, and the head nearly erect. This time I succeeded in removing all the tartar. I took away, also, three more pieces of the alveolar arch, and large pieces of the bone described above. Medicines continued as before.

*This appeared perfectly healthy after extraction. Upon splitting it open, however, the cavity was filled with purulent matter, and the nerve and lining membrane were quite destroyed.

July 12th. Saw Mr. B., he was perfectly restored, head erect, and mouth healthy. I saw him frequently afterwards, and he informed me he had never suffered any since his mouth first healed.

July, 1844.

ON THE USE OF CHLOROFORM.

BY CALEB RADFORD, ESQ., F.R.C.S., UCKFIELD.

The case, in your last number, of the death of a man in St. Thomas's Hospital, illustrates the great susceptibility there is with some individuals to be influenced by chloroform—in short, that a dose which in one instance is quite inoperative, in another is fatal. Shortly after chloroform came into use, I gave ten minims by sprinkling on a handkerchief, and applying over the face of a tall, athletic woman, about thirty; in half a minute she was completely under its influence; I opened her mouth and extracted a molar tooth. The insensibility continuing, she was placed opposite a window, and cold water thrown in her face; in a few minutes she revived, but complained of feeling very faint; a little stimulant soon relieved this.

In another case, thirty minims were sufficient to make a man wholly insensible, while I amputated his thigh: and in a third instance, twenty minims rendered painless the excision of an inch of the median nerve above the wrist; but more than two drachms of the chloroform produced only a very partial effect in a healthy woman who wished to take it for extraction of a tooth. The whole of these persons took the drug from the same supply, and in a few days of each other; the strength of the chloroform, therefore, would be uniform.

Since there seems no means of knowing who will be easily affected, and who will require a full dose, the only safe plan is to begin with a very small one.

Of the persons I have named, the woman who took but ten minims was remarkable for her strength and determination; the man whose limb was removed was fifty-six years of age, and was exhausted a good deal by knee-joint disease. The other man was seventy years of age, and suffered from neuralgia, extending from the finger to the axilla.—*London Lancet.*

Dr. Warren states that the whole number of deaths from Chloroform, which have been published, has reached eighteen, and thinks that many others have occurred which have not been brought to light.

ACCIDENTAL POISONING BY ARSENIC.

BY MICHAEL M'GEE, M.D.

A few weeks past I was requested to visit Eliza —, aged ten years, who, I was informed, had eaten a considerable quantity of meal mixed with arsenic an hour previous, that had been put down for rats. On my seeing her she was very much excited, and crying, but quite free from the symptoms attending corrosive poisons. I was very unwilling to adopt any line of treatment on the mere assertion of the friends, lest this story might be got up for some interested motive, until I learned that arsenic had been purchased that morning, and the little girl seen in the act of taking the meal off the plate. I at once determined on giving an emetic of sulphate of zinc, although she had neither vomiting, thirst, dryness, nor constriction of the throat or fauces, abdominal pain, epigastric tenderness, nor discharge from the bowels. The first emetic did not act, assisted with large draughts of tepid water; a second was given, which acted powerfully. I immediately analyzed a little of the fluid part of what was ejected; it gave, on the addition of ammonio-sulphate of copper, a bright green deposit, ammonio-nitrate of silver, a yellow. I became convinced that not a moment should be lost in using very active remedies. A third emetic of zinc was given, the effect of which was kept up by copious draughts of linseed-tea and new milk, until I felt satisfied that nothing more could be removed from the stomach. On the retching subsiding, I gave albumen. Not having any hydrated peroxide of iron, and being anxious to give it a trial, I made, in a very hurried manner, a solution of sulphate of iron, added to it aqua ammonia, as long as it gave a precipitate, which I washed and dried; of this I gave two teaspoonfuls every quarter of an hour, till a considerable quantity was taken. The patient being very much exhausted, fell into a composed sleep for two hours. On awakening she complained of great thirst; drink was immediately rejected; pulse very weak, and spasms in the legs; two hours after, complained of pain in the stomach; the bowels were griped, and freely moved; had a little tea and toast; much better. This night no sleep; motions from the bowels very numerous; thirst excessive; much better towards morning; complained of tenderness of the gums, with a great loathing of stomach. The second night she slept well; made no complaint the following day; is now quite well. I saved as much as possible of the contents of the stomach, which should never be neglected in such cases. When in the act of decanting the contents into a smaller vessel, I observed a white powder in the bottom of the jug; this I had carefully washed and dried; after testing and weighing it, I had ten grains of white arsenic.—*London Lancet.*

BACKING MINERAL TEETH.

Extract of a letter to the American Journal, from Mr. ANDREW WILSON of Edinburgh, dated May 16, 1849.

SIR,—Having lately been perusing your valuable work on dental surgery, I find that the method recommended for backing mineral teeth, differs considerably from that practiced by me, and which as I think preferable, I will briefly describe, so that you may judge for yourself. After having partially fitted the tooth to the plate, take a piece of thick platina foil, (as thick as can be used conveniently,) and pressing it against the back of the tooth, perforate it where it is marked by the pins, then cut it into the shape of the back as wished to be, and press it as closely as possible to the back of the tooth.

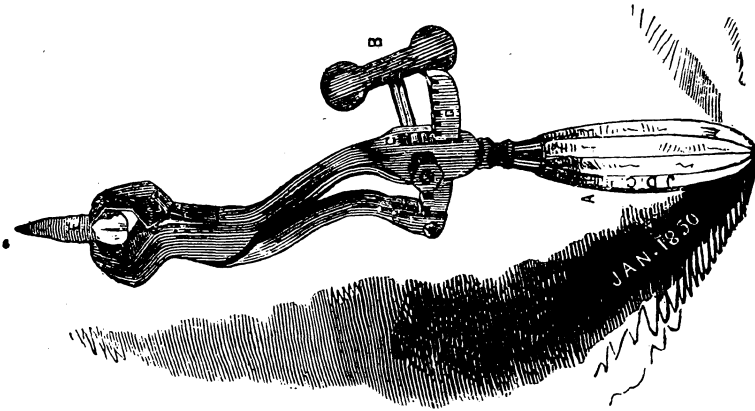
It will now be requisite to apply a little borax to the platina pins which come through the back, and placing the tooth with its face downwards upon a thin piece of pumice, covered with dry plaster of Paris, put several pieces of gold (according to the thickness required) upon the platina back, slowly heat it, gradually raising the heat till it is considered safe to melt the gold with a blow-pipe, when, upon continuing the blast, the gold will rapidly flow over the whole platina surface, incorporating so accurately the pins in the tooth, that I have never seen a case of their being withdrawn when the tooth has been broken, during the whole time it has been in use here, (nearly eight years) they always remaining firmly fixed in the backing upon the plate.

After the backing has been run and the tooth allowed to cool slowly, it is filed to the requisite thickness and shape, when, being closely fitted to the base, it is finally soldered to the plate, as described in your work. We generally use a mixture of fine sand (white) and plaster of Paris, equal parts, for encasing the piece, and also place a thin curved strip of platina in front of the teeth, having a layer of the above mixture on both sides of it, so that should the plaster crack in the soldering, (although it is less liable to do so than plaster alone,) the platina keeps the teeth from shifting their places. The whole time occupied in heating and backing a tooth occupies about half an hour, and when several are doing at once, a very little longer.

We generally employ the same method in making ready the base of a mineral pivot, instead of the tedious process of making casts and striking a plate, and fitting a great deal better to the root, (in consequence of the contraction of the metal during its cooling,) of course all that is required for attaching the pivot, is to perforate the platina base and passing the gold wire through it, solder it to the platina, and run gold over the surface of the platina at the same time.

MARCH, 1850.

NEW EXCISING FORCEPS.



- A. An ivory handle, into which one handle of the forceps is inserted.
- B. A handle and shaft passing through the pinion.
- C. The Pinion.
- D. A Rack.

The above cut represents an instrument invented by Mr. J. D. Chevalier, for excising an entire tooth, if necessary, or the broken and decayed remains which are to be removed before inserting artificial crowns with pivot. By the aid of the rack and pinion, here employed, there is not only a great increase in the power of the instrument, but it is so gradually applied as to prevent the disagreeable and painful jar which is produced when the common cutting forceps are used, while, by holding the ivory handle loosely in the hand the instrument is left to take its natural position when the force is applied, so as to avoid straining the fang of the tooth either forwards or backwards in the socket, as is often the case with the instrument commonly used. These two advantages make this instrument highly desirable when any considerable portion of a tooth is to be excised with a forceps, especially as the price of the improved instrument (\$4,00) is but little more than that of the common cutting forceps.

ENAMELED PLATES.

In August 1848, we published in the Dental Recorder the specification of Levett & Henry's patent for a varnish, or jappan, for coloring gold plates so as to cause them to resemble the gum or "skin of the

mouth." Since that time Mr. Levett has improved upon the article, for which he then held a patent, by making a complete and beautiful enamel which flows at a lower temperature than ordinary dentists solder, covering the plate with an even and beautiful coating which, when in the mouth, can hardly be discerned from the natural and healthy gums. He also makes the same enamel white for the purpose of tipping the ends of clasps when exposed to view on the side or front teeth.

We have not had an opportunity of testing the virtues of this new compound, when worn in the mouth, but have seen it highly recommended by several eminent dentists. The following communication from a correspondent will speak for itself.

For the Dental Recorder.

MR. EDITOR.—Sometime since I made an experiment with an enamel patented by M. Levett, a distinguished dentist of this city, and, from the manner in which it worked, I considered it at that time a valuable improvement, and gave my certificate recommending it, before I had properly tested it in the mouth. I am sorry to say that time shows a very different result from what I then anticipated.

It does not stand the acidity of the mouth (a distinguished chemist to the contrary notwithstanding,) and if there is the least spring to the plate it will scale off, leaving the plate quite rough and disagreeable to the patient.

The following recipe, handed me by a gentleman in this city, forms an enamel quite equal in every respect, and so near like that of Mr. Levett that an experienced workman cannot distinguish which is the patent one, but it is liable to the same objections, and for that reason has been abandoned by him some time since.

Pulverised Flint Glass,	-	-	-	3	parts
Silex	-	-	-	1	"
Red Lead,	-	-	-	1-2	"
Oxide of Tin or Bone dust *	-	-	-	1 1-8	"
Calcined Borax	-	-	-	1-4	"
do. Salt Petre	-	-	-	1-16	"
Bicarbonate of Soda,	-	-	-	1-32	"

When gum color is desired, add about five parts of English Rose Red to one hundred parts of the above, or as much as is necessary to give it the proper tint.

Melt the borax two or three times, pound it and the glass very fine in

* To prepare the bone dust take the solid parts of common bone and calcine them until every particle of animal matter is destroyed, then pulverize and wash, using only the fine powder which remains suspended in the water after the first washing.

a wedgewood mortar, then melt all the ingredients together in a clean crucible, and pour it out on a porcelain slab, or into water. It is then to be reduced to an impalpable powder, and when used mixed with a little water and laid upon the work with a camels hair pencil, or with a thin piece of wood of any convenient shape. When not using it, keep it covered and free from dust. Care must be taken not to heat it, when using, above the melting point. If it becomes desirable to remove the enamel for any purpose, it can be done by throwing the plate into Muriatic acid.

TRUNK CHAIR.

Several years since a trunk, capable of being changed into an operating chair, was invented by a dentist of Whitehall, Vt., which was noticed in the newspapers of the day as a remarkable piece of ingenious mechanism, but the one which we saw was awkward and inconvenient, and much inferior to a common high backed rocker, for the dentist's use. An improvement has been made upon it by the late Mr. Foster of Trenton, N. J., who has changed entirely the form and mechanism, and made a very convenient and chair-like seat for the patient, and well adapted for the operations of the dentist. All the cushions, and other apparatus belonging to the chair, when not in use, can be packed in the trunk besides leaving plenty of room for instruments. These chairs are for sale by Messrs. Jones, White & Co., and, we should think, deserving of the attention of travelling dentists.

PROCEEDINGS OF THE SOCIETY OF DENTAL SURGEONS

OF THE STATE OF NEW YORK.

The *Regular* meeting of this Society held on the evening of December 4th, was adjourned from time to time, but amounted to little more than social re-unions of the members for practical discussions, and finishing the details of business reported in our January number. Mr. H. P. Fisher of Brooklyn, N. Y., and Mr. Alfonso M. Caboret of St. Juan, Porto Rico, were admitted to membership. The drafts of a diploma and certificate of membership, reported by the committee, were amended and adopted. They are as follows :

D I P L O M A .

"SOCIETY OF DENTAL SURGEONS OF THE STATE OF NEW-YORK. *To all whom it may concern. Greeting:* This Society, instituted Nov. 17, 1847, for the mutual improvement of its members, and to elevate the

standard of the profession at large, by these presents witnesseth that A — B — a member of this Society, having, by his own request, been examined in the different branches of Dental Surgery, and pronounced by the Examining Committee competent to practice the same, therefore, this Society awards to the said A — B — this Diploma, and presents him to the public as a well qualified and competent Dental Surgeon, enjoining upon him a strict observance of all the duties and obligations pertaining to the same, as well as a due conformity to the laws and usages of this Society.

In testimony whereof, the seal of said Society, with the signatures of the President and Examining Committee is hereunto annexed. Dated this — day of —, A. D. one thousand eight hundred and —.

Names of Examining Committee,

President.”

Certificate of Membership and receipt for annual dues.

“SOCIETY OF DENTAL SURGEONS OF THE STATE OF NEW-YORK. *This is to certify*, that A — B — was duly elected a member of this Society on the — day of — 18— and having since complied with all the requirements of the Constitution and By-Laws.

THIS RECEIPT for *Three Dollars*, the amount of his annual dues, will entitle him to full membership until the — day of — 18—.

Secretary,

President.”

The Society made choice of Messrs. C. C. Allen, J. Lovejoy, and H. Burdell, Examining Committee for the remainder of the current year.

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ETHER vs. CHLOROFORM.

Dr. J. C. Warren, in a communication addressed to the Boston Medical and Surgical Journal, states that many practitioners in England, France, and this country, have discontinued the use of Chloroform on account of its dangerous and fatal effects, while Ether is used freely, daily, and harmlessly without any ill consequence worthy of notice having come within his knowledge. Thousands of patients, as well as surgeons, are rendering thanks for the discovery of such an agent for the alleviation of human suffering.

The uniform success of Ether in this country is attributed by Dr. Warren to two circumstances; one is its very free and decided use, and the other the caution exercised before and during its administration, which causes it to be rejected in trifling operations and improper cases. Sulphuric and strong Chloric Ether are both employed. The latter is most agreeable, but when freely used, is apt to produce soreness of the face, unless some unctuous substance has been previously used.

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Vol. IV.

APRIL, 1850.

No. 7.

ANATOMICAL, PHYSIOLOGICAL, AND PATHOLOGICAL RELATIONS OF THE MOUTH.

BY PROF. W. R. HANDY.

It is a well understood fact, we believe, that those who are most advanced in general knowledge see and feel its importance most, as contributing to the happiness and usefulness of every member of society. Hence we find, with few exceptions, that the intelligent portion of our population are the strongest advocates for education, and desire most the cultivation of the mental and moral faculties of their fellow men. It is this class of men who are the strongest advocates of public schools for the education of the masses; they are the founders of our colleges, academies, and lyceums, and are first and foremost in every work which has for its object the elevation of men in the scale of useful knowledge and improvement. If this be true in a general sense as applied to the possession of general information, it is also true when confined to any particular profession, trade, or calling in life. Take, for instance, the profession of the law, and we shall find that those who are the farthest advanced and the deepest read in its principles, are the most enthusiastic in its praise, the most devoted to its advancement, the most interested in its schools, and the most anxious for the honorable standing and intellectual character of the students who are preparing to fulfil its offices and duties, and soon to take the places now occupied by them.

These facts go to prove that it requires no small degree of mental cultivation to fully appreciate the beauty and the happiness which are found in the pursuit of useful knowledge, for, while the intelligent are eager to gather fruit from the tree of knowledge the ignorant are contented to recline in listless stupidity in the shade of its branches, and are content to dream away their lives, and waste the intellects which God has given them, without making one effort to gather the rich treasures of useful knowledge which are so bountifully cast around them.

One of the hardest tasks which an intelligent and teaching mind is called upon to perform is to convince a fool of his folly, or, in other words, to

place such facts, arguments or motives, before an ignorant mind as will stimulate it to efforts for cultivation and improvement, and one of the greatest stumbling blocks in the way of such persons is a vain and conceited opinion of their own natural abilities. A man whose mind is inflated with ideas of his own greatness, and vast superiority over others, engaged in the same pursuit, is in no situation to receive instruction from them. Unfortunately there are too many Dentists of this character. Emerging, as many have done, from the different mechanical pursuits and trades, where they, perhaps, have stood among the best in their art, they expect by a kind of *presto* movement to glide in among the "*Doctors*," and maintain the same pre-eminence which they held in the pursuit to which they had been bred by a regular and laborious apprenticeship. We may suppose that it was with the view of improving such as these that Prof. Handy of the Baltimore College of Dental Surgery, wrote for the *American Journal of Dental Science** the two papers, the titles of which stand at the head of this article. Let us all imagine ourselves included in this large class, while we peruse the liberal extracts which we propose to make from the above articles, for it is only by so doing that we can rightly judge whether we possess all the knowledge of those branches which are necessary for the successful practice of dental surgery. In reference to the "self-constituted dentists" Dr. Handy has the following question and answer, which let us all concur in, and no one flatter himself that he is included in the select "few" which our author excepts :

"Without any intention, whatever, to give offence, we most honestly ask, how many out of the great body of self-constituted dentists, scattered over the length and breadth of our country, have a general, much less a precise, knowledge of the dental organs? their structure, functions, relations among themselves, and with the system at large?

"The answer must certainly be, that it is only the few that possess any scientific acquaintance with the mouth, while the great bulk, it must be acknowledged, view the mouth as little more than a blacksmith's shop, where they as mechanically extract a tooth and adjust a plate, as the smith fits the shoe and drives the nail to the horse's foot."

Prof. Handy takes the ground that the surgeon dentist has charge of every part of the mouth as his especial province, and that, therefore he should be well acquainted with its anatomy and physiology, as a preliminary step, before he commences his practice upon any part of it; and he further asserts that the few educated men in our profession have sounded the alarm, so that the public are beginning to be awakened to the importance of this subject "to wit: the absolute necessity of a scientific

* See vol. 8th, No. 3, and vol. 10th, No. 1.

dental education." He says: "this noble little band, who have so long struggled for such a result, are now beginning to realise the fruit of their hard earned toil; are now beginning to see the dawn of the future meridian sun, when in all the splendor of his brightness, he will make the circuit of his course, side by side with that of his medical brother; that the day is fast approaching when the science of dentistry will be acknowledged to have the same family origin, as that of medicine; when the claims of relationship will not only be established between the two, but be gladly embraced by both; and when the twin brothers so long divided, will be seen to be walking hand in hand, and marching joyfully together, onward and upward, each in its respective sphere, though both in the same great circle of good, striving alike to reach the goal of their utmost ambition, to wit: the blessing of mankind, by removing disease, restoring health, and thus augmenting the amount of human happiness?"

We need not say that this is a consummation most devoutly to be wished by all who cherish in their heart a love for the honor and respectability of dental surgery; but we can see but one way in which it is to be accomplished. That Dental Colleges may, and have done much towards improving and elevating the science of dentistry, we can, and do most cheerfully admit, and for this we would for the present, at least, hold out every encouragement to them, and bid them God speed in their good work; but, not until a part can be made equal to the whole, not until our speciality in the great science of Medicine can be elevated to the importance of the whole, can the men who have been educated to practice only that one speciality rank with those who have been instructed in the whole? We yet hope to see the time when our medical schools will awake to their own interests and the importance of instructing their students in the principles of dental, as well as other branches of general surgery, so that their graduates will be as well prepared to operate upon the teeth as upon any other bones in the human body, and when all colleges of Dental Surgery will be supplied with teachers in every branch of Medical science. When this is done the public will have a sure guarantee that their dentist is as well educated in the principles of Medical science as their oculist, their obstetrician, their surgeon or physician. The following are Prof. Handy's views respecting the relations of the mouth with other parts of the general system:

"By its physical relations, the mouth is made the medium of the air we breathe, and of the food and drinks we take to nourish our bodies.

"By the organic, it is united to all the organs of the body, thus forming an essential link in that great and mysterious chain, the various parts

of which are bound together in one great brotherhood; forming thereby one common sympathy, one common interest, and one common enjoyment among the whole family of organs.

“And by its mental relations, the mouth is the instrument of music, speech and oratory.

“It is the organic relations of the mouth, which chiefly claim our attention; and these are the anatomical and physiological.

“The anatomical elements of the mouth, are the same as those seen in every part of the body—we here find bone, muscle, gland, blood-vessel, nerve, cellular, mucous structures, and all entering as elements in its formation. These elements variously combined, constitute the dental organs, and the varied actions of these organs comprise the functions of the dental apparatus. Now these same elements, with some others, though differently combined, enter into and form all the other organs of the body with all their wonderful variety in form, size, color, density, structure and function; and further, many of these same elements of the mouth can be easily and distinctly traced into other and distant organs, and, in fact, with some throughout the whole system.

“The mucous membrane of the mouth can be readily followed by one direction into the pharynx, oesophagus, stomach, intestines and collatitious organs, through their excretory ducts; and from the same point as readily traced in another direction into the larynx, trachea, bronchia and lungs; thus, not only connecting all these various and remote organs by one continuous anatomical structure; but further, by combining its functions with those of these several organs, of thus entering into and forming a most essential element in the complicated process of digestion and respiration—processes whose end is no less than the conversion of our food, first into chyme and chyle, and finally, into blood—the vital pabulum of formation, growth, and sustentation to the whole body.

“The blood-vessels of the mouth, to wit: the arteries can be traced back to the external carotid, which, uniting with the internal carotid artery, forms the common carotid, which is traced still further back into the arteria-innominata of the right side and arch of the aorta on the left, and both ultimately into the heart; the great centre of the circulation and the common source from whence the blood takes its departure, to be distributed throughout the whole system; thus it is seen, that these two elements, simply of the mouth, the mucous membrane and its arteries, enter most largely into the whole economy, and connect functions at once the most varied, complicated and vital.

The *nerves* of the mouth can be traced to the brain and spinal marrow, thus uniting it with the sources of thought and voluntary power; and thereby putting it in the most intimate relation with all the organs to which the nerves, emanating from these quarters, are distributed, together with all their functions; comprising all the organs of relation, those which connect us with the external world, and consisting of locomotion, speech, and sense.

“The glosso-pharyngeal and parvagus of the eighth pair of nerves, is the direct route of connection between the mouth, brain, pharynx, oesophagus, lungs and stomach; while the frequent anastomosis of the sympathetic, with these same nerves, establishes still more closely and

extensively the inseperable relation which the mouth has both with the organs of relation and nutrition.

"That the relation of the mouth, is thus intimate, extensive and direct with these two great classes of organs, it is only necessary to mark the effect when any disturbance in their physiology or healthy action occurs.

"Suppose, for instance, the brain becomes injured, or some most sudden, unexpected and disastrous news reaches it, immediately the eighth pair of nerves, with telegraphic speed, conveys the impression to the mouth, lungs and stomach; and as quick as thought, the healthy action of these organs will be more or less interrupted; the stomach, let its appetite be ever so keen, will have an immediate loathing for food, and if at dinner, will at once, most probably, vomit what had been taken.

"The lungs will almost instantly cease to breathe, while the countenance is pale or otherwise, as the blood circulates or not, in the face.

"Or let a child have difficult dentition, and the irritation of the gums, through the fifth pair of nerves, will be extended to the brain, and from thence be reflected upon the muscular system, producing convulsions, frequently, both frightful and dangerous: thus illustrating the relation of the mouth with the brain and muscular organs.

"The cellular membrane of the mouth is *universal* with the whole body; it enters as an essential element in the constitution of every organ; surrounds, separates and connects every part, and has been beautifully compared to a mould, in which every organ receives its original and proper shape.

"The *muscles* of the mouth possess the same physical and vital properties with the rest of the muscular system; so that in cases of general or partial paralysis, the mouth often partakes in the same affection, and may be either drawn to the one side, as in hemiplegia, or completely and firmly closed as in lock-jaw.

"The *glands* of the mouth, forming another of its elements, and consisting principally of mucous follicles, are continuous with the same extensive chain, found strewn throughout the whole alimentary tube, from one end to the other.

"*Pathology* might here be invoked to establish, if possible, still more conclusively this general relationship of the mouth with the system at large; for when the organs are in perfect health, each performing its appropriate function, and the whole acting in the utmost harmony, in the great drama of life—we say it is not always in such a state of things, that the general relations of the body are most readily detected and traced. On the contrary, it is often necessary that the discord of disease should enter into this happy family of organs, and disturb the mutual understanding, and constant and repeated acts of friendship and kindness; with all the reciprocal and mutual benefits, unceasingly flowing from such relationship—we say it is only then, that we become fully sensible, how deep is the bond of sympathy which unites each organ to every other organ, and how strong the ties which bind the whole to every part and every part to the whole; thus beautifully illustrating the mutual fellowship, dependancy and assistance which each most cordially extends to the other and the whole to each.

"As for instance, fever is a general disease, and attacks the whole

system. Do we find the mouth idle in this general assault any more than any other part? On the contrary, do we not find by a variety of the most significant expressions, as dryness of the mouth, furred tongue, parched lips, that it not only has a close family relationship with the system at large, but proves it, practically, by both feeling and sharing largely in the general distress, and endeavoring as far as possible to divide the calamity, common to the whole?

"In scurvy, another constitutional disease, the *gums* swell, become spongy and bleed; thus showing that they sympathise with and partake of the relaxed and debilitated condition belonging to the whole body; and so with a variety of other examples unnecessary to cite, where this general relation between the mouth and rest of the system is equally shown."

Upon the "domestic relations" of the mouth, or the relation existing between the different organs and functions which comprise it, Prof. Handy is not so full or explicit, although the subject is of more immediate importance to the Dentist than the more general relations and sympathies existing between the mouth and other parts of the body.

"That such relations exist, seem almost self-evident, and also as infallibly certain, that if any thing should occur to derange these relations, discord and confusion will be the necessary result; in the language of the proverb, 'a house divided against itself must fall.'

"The mouth, as already stated, consists of a variety of organs and equally as great a variety of functions. It contains the organs of prehension, mastication and insalivation; also, the additional functions of suction, speech and expression; with the special sense of taste, and the general sense of feeling.

"Now if any of these organs or functions be impaired or lost, there is more or less disturbance among all the rest.

"Who is not familiar how the loss of the teeth, a cleft palate, and swollen tonsils alters the speech, changes the voice, and renders articulation frequently very difficult, if not impossible, while, at the same time, mastication is exceedingly tedious and imperfect? &c. And if the taste and general sensibility of the mouth be destroyed, all its functions concerned in the first stages of digestion will be performed, according to the experiments of Sir Charles Bell, in a slow, indifferent and irregular manner.

"Enough has now been said, we trust, to prove most conclusively, the first part of our proposition, to wit: that the mouth is not simply an isolated part of the body, but, on the contrary, that it has the most extensive, direct and important *anatomical* and physiological relations with the whole system.

"It may here be admitted, that these relations of the mouth are all as intimate and extensive as stated, but some of our readers gravely ask the question, suppose such to be the fact, of what use is all this to the dentist? or in what conceivable way has it any thing to do, or by any possibility afford any assistance in the practice of his profession? The dentist has only to do with the mouth, if he understands that, where is

the use to go further? The answer to this question brings us to the second part of our subject, which is to show that a *knowledge* of the *anatomical and physiological* relations of the mouth are essential to the scientific dentist, and that such knowledge is also equally essential to skill, success and honest eminence, in the practice of the simply mechanical dentist."

Much might have been said, here, of the importance of a knowledge of the relation existing between the superior and inferior maxillaries which embraces the antagonizing of all the teeth, the motion of the teeth in their sockets, the physiological laws to be understood and observed, while regulating mis-placed teeth, the doctrine of absorption, secretion &c., &c., but there are, nevertheless, many important suggestions in the following extract, which every dentist should take heed to:

"Now the *mouth*; the special department of the dentist, is equally liable to accident and disease, with that of any other portions of the body, hence equally belonging to the dominion of surgery and medicine, and equally requiring the knowledge and skill of both surgeon and physician for their proper treatment; for example, the surgeon dentist is applied to for a set of artificial teeth—on examining the mouth, he finds the gums and palate inflamed, swollen, spongy and bleeding. Does he commence at once taking the impression and adjusting the plate under such circumstances? Certainly not, for the greatest ignorance as well as suffering of the patient would not tolerate so gross a violation of common sense.

"Before he can do anything either safely, skilfully or successfully, he must answer at the bar of his conscience as an honest man the following or similar questions in reference to the case. Is the inflammation common or specific, one of an ordinary character and soon subsiding, or one that is constitutional and extending deep and far back in the general system? or is it a malignant tumor, defying any or all kinds of treatment whatever?

"Now the answer to these questions settles the all-important point, whether it will be proper at all to apply any plate, and if proper, the time when it can be most safely done. And this answer can only be arrived at by a knowledge of the healthy structure and functions of these parts and their relations with the general system, in other words the anatomy and physiology of the mouth, and of the whole body, is necessary to form a safe and correct judgment in the matter.

"For this state of the gums and palate, just described, are only so many morbid conditions or departures from the standard of health natural to these organs, hence to restore them back to this standard, it is plainly to be seen, that we must first know what that standard is.

"Now the *health* of the mouth as well as every other portion of the body, depends upon the state of the general system, and this state of the general health, whether good or bad, determines the point of how soon the operation may be undertaken, for if the patient be laboring under syphilis or scurvy, these general diseases will be reflected with greater or less violence upon the mouth, and it will invariably suffer with other

parts, in the precise proportion of its relation, established by the universal law of dependency, which it has with the neighboring organs, and with the whole system.

"But how is the dentist to judge of the influence of disease of the body upon the mouth, when he knows nothing of the organs and functions of that body in the state of health? of their mutual action and reaction for weal or woe? And that in proportion as the organs of the body depart from their healthy standard of action, in like proportion, may we expect the *mouth* to sympathise with and suffer in the general disturbance; and not until this general disturbance is lessened or removed, can we expect any amelioration or subsidence in the diseases of the mouth.

"Hence in the cases before us, the well informed dentist in anatomy and pathology, would know that scurvy and syphilis required constitutional treatment; that these diseases must first be eradicated, and the general health of the system first be restored before he can with any kind of propriety and success, commence the special application of his art in applying artificial teeth.

"Again, without this general knowledge of anatomy and physiology, and of the reciprocal influence which the whole body and its several parts exert each upon the other, both in health and disease, it is equally impossible that the dentist can have any conceivable conception of the immense amount of injury that purely local diseases of the dental organs can produce upon the general health, and consequently how much suffering he might relieve were he in possession of this *anatomical and physiological knowledge*, which we are contending for as absolutely essential to a scientific and honest dentist.

"But again, and lastly, would any dentist desire to be ignorant, or to be considered ignorant of the different parts composing the mouth, their respective relations, mode of formation, development and peculiarities in contrast with the rest of the body? certainly not. But how can he possibly escape such a dilemma, when he knows nothing of the source from whence the materials for building up the dental apparatus are derived? to obtain which knowledge, the study of anatomy and physiology is his only hope."

Neither Prof. Handy nor any other writer can make those who are unacquainted with the scientific principles involved in the practice of Dental Surgery fully comprehend the importance of these subjects to the successful practice of the art; as well might one attempt to make the blind appreciate the luxury of beholding the sun in the heavens, the earth covered with verdure, and the myriads of beautiful objects which surround them, but which they can never enjoy. To those who desire to be able to understand and explain the harmonies which exist in the healthy relations of the different organs and functions of the mouth, as well as between the mouth and other parts of the body, we say go study the anatomy and physiology of the whole human system. In our next number we shall make some extracts from the Article on the Pathological relations of the mouth.—[ED. RECORDER.

REPORT ON CARIES OF THE TEETH,

AND ITS TREATMENT; SUBMITTED TO THE MISSISSIPPI VALLEY ASSOCIATION OF DENTAL SURGEONS, AT THEIR FIFTH ANNUAL MEETING, HELD IN LOUISVILLE, KY., 2d TUESDAY OF SEPT., 1849. BY DR. B. T. WHITNEY.

There is no disease, which the dental apparatus is heir to, of a more disastrous character than caries of the teeth; and none more common, and at the same time, more under the control of the dentist, by timely and proper treatment. It is so common, that we have only to look into the mouth of almost every person over seven years of age to find the disease in question; and so disastrous, that but few, who have lived more than sixteen years without the aid of a dentist, but that can bear witness of its ravages.

A disease so general and destructive to organs so important, requires the most careful and attentive investigation of every practitioner of the dental art. It has been estimated by persons, who have paid some attention to the subject, but with how much truth, it would not become me to say, that more teeth were lost than saved, by "*professional*" interference. If this be true, it is a sad commentary on the worth of the profession; or shows that the greater amount of business is in the hands of the empiric.

The teeth of a person perfectly healthy in childhood, fully developed, and well constituted, are subject to decay, only from external agencies, acting directly on the substance of the tooth. Changes in health after adult age, even the frequent attacks of disease, or fevers of a low type, do not materially effect the teeth. Their texture is permanently fixed with the child, and not vacillating in after life, with the health of the individual. They may become the seat of disease, but not constitutionally; but from local causes or secondary results. But if, in departing from nature's course, and transgressing her laws, these organs become constitutionally defective or diseased, the hope of restoring them to health, or bringing about what nature failed to do in its organization, is vain; but if only secondarily, or from local causes, they take on disease, we have only to direct our treatment to the removal of the causes producing it, and repair the injury already sustained; and [we accomplish the desideratum.

In many cases, the seeds of disease, and imperfect development of these organs are sown in childhood. Attacks of disease, enfeebled state of the health, or improper diet during ossification, may cause imperfect development of the teeth, frail texture, or atrophy; and neglected dentition, may produce mal-position or disease of the teeth; and thin or

imperfect enamel. Decay and premature loss of the teeth, must be the result in either case, without the greatest care.

The power of the teeth to resist causes of decay, is in proportion to their organization—whether hard or soft ; and position, whether regular or irregular ; and require preventive or curative means, or they fall victims to caries, in the same ratio. This holds good with teeth in the same mouth, as well as with different persons ; as the supply of bony matter may be stopped or impaired during the formation of some teeth, and abundant at other times. This is evident from teeth decaying in pairs ; the remote causes, acting alike on those formed at another time, without injury.

To successfully apply the preventive means, requires an accurate knowledge of the causes producing caries of the teeth ; and though numerous, each deserve a separate chapter.

There are often remote causes acting upon the teeth ; but more generally they are palpable. In well formed and regular dentures, of good physical condition, the want of cleanliness, is, perhaps, the most general ; next to this, abuses and accidents, by which the enamel becomes fractured or abraded, so as to expose the dentine to the corroding effect of all foreign agencies, so often brought in contact with the teeth, or morbid action of the system. Many articles of medicine may act chemically on the teeth. The free and careless use of acids, will speedily neutralize the lime of the teeth, and hasten their destruction. The use, even of a tube to convey it to the throat does not entirely protect them ; as in swallowing, it regurgitates against the teeth. The use of improper toothpicks and dentifrices are often as injurious to the teeth as the lack of cleanliness. The injudicious use of the file, scraping the teeth, improper adaptation of artificial substitutes, and careless plugging or of bad material, or the more common mal-practices of the *tooth destroyer*, alias, dentist ; directly producing, what the unfortunate had employed them, in good faith, to cure.

We have many things to take into consideration when called upon to treat caries of the teeth, besides plugging up the cavities. Some diseased action of the system, or mercurial influence, may have rendered the fluids of the mouth impure. That action of the system may have passed off ; but the unhealthy condition of the mouth, has, in turn, more permanently vitiated the saliva ; and its effects are visible on the teeth. We may find chronic inflammation of the gums, calcarious deposit, ulceration of the periodontal membrane or pulp, absorption of the alveolar process, and loosened and dead teeth—really a motley assemblage of disease presenting itself to our view.

But before proceeding to perform that very important operation, we must perform the more important one, of restoring health to the mouth ; otherwise, our efforts to save the teeth will prove but temporary, or entirely fail. To designate and carry out the proper treatment for such a complication, requires knowledge, experience, and skill. It is often a sad report to the timid, when only expecting to have a few teeth plugged, to be informed, that before performing that operation, it becomes necessary to extract dead teeth or roots, remove tartar, cure sponginess of the gums, allay irritation, and correct the morbid action of the salivary glands ; thereby, subjecting him to a painful operation, and days or weeks treatment. Professional capacity, and gentlemanly deportment will, at once, inspire confidence ; and by kindly controlling the caprices of the patient we soon gain the mastery, and are left to the free exercise of our own judgment and skill, in the use of curative and preventive means ; and when we dismiss the patient, it is with confidence that the greatest good has been accomplished ; and with gratification and self-respect, we can say with Cæsar, *veni, vidi, vici*.

In passing judgment on carious teeth, the professional knowledge of the operator is called out, to determine which teeth may be saved by plugging ; as well as his firmness of character, respect for himself, and regard for his patient. He may be led to act in mercy to the imploring patients, against his better judgment ; and after weeks, or even months, will have the mortification of being compelled, not only of removing the plug for the seventh time, but finally the offending tooth. It should be put down as a general rule, that in treating complicated caries, especially of the molar teeth, that it is much easier controlling them on our table, than in the mouth ; and should proceed at once to extract them. There may be an occasional exception. The incisors, cuspidati, and even bicuspidati, if the soft parts are healthy, the walls of the cavity good, and not too great a loss of substance, may be saved by judicious treatment.

The tooth is destroyed by the exposure of the osseous tissue, to the influence of external agencies ; and so long as the juices of the mouth or liquids taken into it, are allowed to remain in contact, the decay must progress. In a healthy state, the enamel is protection, and so long as it is perfect, we have nothing to fear ; but if the natural covering becomes destroyed, we are called upon to build up an artificial one ; and when the operation is well performed, we have confidence in its permanency. To accomplish this, the cavity must be well cleaned of all carious portions of tooth, and of proper shape, however tedious and perplexing the operation may be ; presenting a firm and healthy appear-

ance, the foil well packed, perfectly solid, and finely polished, with the edges of the plug in firm contact, and even with the surface of the wall of the cavity ; so as to present a smooth and uniform appearance, and prevent the admission of moisture, or the lodgment of foreign matter, or the mucous secretions of the mouth.

The treatment for caries of the teeth, is divided into two classes—filing and plugging. To arrest superficial caries of the lateral surfaces, the file alone may be sufficient ; and it also is necessary in preparing the way for plugging.

The performance of the operation of filing, demands judgment as well as dexterity and skill, and when that instrument is properly used, it is one of the most important curative means in manual dentistry, and at the same time, if abused, is productive of as great evil as any instrument can be, in the hands of the empiric. If it is for the cure of superficial caries, it must be carried to the full extent necessary for the removal of all the discolored portions of the tooth ; and at the same time in such manner as to preserve the beauty and symmetry of the organ ; or if preparatory to plugging, by making space to enable the operator to get at the diseased portion of the tooth, or for the purpose of cutting down the ragged and weakened walls of the cavity ; it should be used liberally, as the facility in performing, and the success of the other parts of the operation, mainly depends on this. The patience of the operator is often as much taxed as his skill, in controlling the caprices, or allaying the fears of the subject. In filing the incisors, if both teeth are decayed, we use a thin separating file, cut on both sides and edges, carrying it firmly and steadily between the teeth to near the gum, leaving, at that point, a slight projection or shoulder on each tooth, to prevent them approximating each other again. A thin, safe sided file, (one side smooth, so as to save the edge of the neighboring tooth,) is then carried diagonally, from right to left, or vice versa, cutting away more in the palatine than labial side of the tooth. In this manner, as much may be filed away as desired, without materially injuring, but sometimes improving the appearance of the front of the tooth, and affording sufficient room for the easy excavation of the cavity, and introduction of the foil. Where the file is used, the surface should be smoothed off with a half worn file or pumice stone, so that foreign matter, or the secretions of the mouth may not lodge there. If but one tooth is decayed, the safe sided file only should be used, that the sound tooth may be unharmed ; otherwise the operation should be performed in the same manner. If it is on the approximal side of the bicuspidati or molares, the space made should much resemble the letter V, though not brought to a point

at the gum. For this purpose, a file much thicker at one edge than the other, or like a clockmaker's pinion file, is necessary. It is important that we obtain this shape by filing, for two reasons: The decay, if much advanced, undermines the corners, or grinding surface of the tooth, which is liable to be broken off in mastication; and leaves firm and healthy walls; and secondly, it enables the operator to thoroughly clean and prepare the cavity, and insert the plug in the best possible manner. A third may be mentioned for the especial benefit of those, who think more of an economical operation than permanent good to the patient; and by carrying out the proper practice in such cases, less gold is required, and time and labor saved in filling the cavity. After the foil is well packed, the use of the file becomes necessary again, in cutting down the projecting portions of the plug, leaving a uniform surface, preparatory to the last part of the operation, that of finally polishing the plug.

The peculiar kinds and shape of files, or numerous instruments for excavating and preparing the cavity for the plug, need not be mentioned in this paper, as they are found in all varieties with the manufacturers or venders: and the operator should be supplied with a sufficient number of various patterns and sizes, together with drills and burrs, so as never to be at a loss or embarrassment in preparing any cavity. But for the easy and speedy accomplishment of this operation, a peculiar tact and much experience is necessary. It is often tedious and perplexing from the peculiar location or condition of the disease. There can be no specific or definite rules laid down, by which the operator may proceed in using the instruments, or finally accomplishing the desirable object for all the peculiar cases; and can only be accomplished by study, ability and perseverance. Four things, at least, should be strictly observed in this part of the treatment of caries; the discolored portion should be entirely removed, the walls of the cavity firm and healthy, with smooth and uniform edges, the inner part of the cavity at least as large as the orifice, and if shallow, with some opposing depressions, to aid in retaining the plug; and finally thoroughly cleansing and drying the cavity. However great the labor or time employed, we should never stop short of fully accomplishing this much, before proceeding to insert the plug. If the decay is in the approximal edges of the teeth, first employ the file, until the required opening is made, to enable you to proceed with facility. If it is in the grinding surface of the molars or bicuspidati, the orifice is often very small, while the disease has made great ravages in the softer substance of the tooth. In this case, proceed to enlarge the opening by the use of drills or properly

pointed instruments, when we shall be able to reach the interior without difficulty. Though in this location we often find the first steps attended with some perplexity, when the decay, commencing in the centre, following the several depressions towards the outer sides of the tooth. Though the covering of these several branches is still firm and hard, they must be cut away equal to the decay in the dentine, leaving smooth and uniform edges. The preparation of such a cavity, often consumes more time than plugging; but in treating caries of the teeth, the operator should never value *time*, but use it with a becoming spirit of liberality, and the importance of the organ he claims the ability to save from the ravages of a disease that there is no temporizing with; but make the treatment both curative and preventive.

Many cavities may require but a short time, while others would consume hours of continued hard labor. Whatever price may be stipulated for so important an operation, let the operator feel determined on saving the diseased organ, and if he finds he has offered to plug a cavity for less than it is worth, let him never try to save himself at the expense of the tooth; for if half done, it had better never have been done at all, thereby saving loss to himself, expense to his patient, and last, though by no means least, dishonor to himself and the profession.

The materials capable of resisting the external agencies that act on the tooth, and suitable for plugging, we will take for granted to be only gold and tin, and that it is empirical and injurious to substitute any other. While gold is more to be depended upon at all times, tin may often be employed with entire confidence. The oldest plugs I have ever seen were of tin, and those had been in the mouth for forty-one years, and still perfect. Several of the molars of this gentlemen had four or five plugs in them, which had been inserted at different periods within the last half century, and of this material only, all in a sound and healthy condition, having lost but one tooth for forty-two years, and that from alveolar abscess. I regret that in the lapse of time, he has lost the name of the first operator. Albany, N. Y., has the honor of having been his field of labor. I have seen many others who have had tin stopping in their teeth from ten to twenty years, in perfect preservation. The foil is put into different forms, for use, by operators. Some divide the sheet into several strips, and twist each; others fold them together till it is from the fourth to a sixteenth of an inch in width; others roll it into balls; but of all forms into which I have ever prepared it, the best is by putting together six or eight sheets, and cutting into strips of the desired width. If the foil is well connected, the cut edges will adhere firmly; and if they do not, it is not fit for use.

The cavity should be well cleaned and washed out, by a lock of cotton steeped in water, and thoroughly dried with other locks of cotton and shielded from the saliva, so as to keep both foil and tooth dry while packing the plug. With a small pointed plugger, so bent as to reach the bottom of the cavity easily, one end of the strip of foil is carried to the bottom and against the sides of the cavity, then a fold of the foil carried down by its side, and so on, fold after fold, each carried to the bottom of the cavity, and pressed firmly against the others, till the cavity is well filled, leaving each fold of the foil projecting say the eighth of an inch, according to the depth and size of the cavity. We are now prepared for consolidating the plug. For this purpose, a strong plugger, with a small needle-like point is decidedly the best, curved or straight as the position of the cavity may be. First, make moderate pressure around the entire edge of the plug, so as to carry the projecting portions within the circle of the cavity, advancing nearer the centre every turn. After the mass is partially consolidated, the instrument, if possible, should be forced into the centre of the plug to the bottom, forcing the foil in every direction against the sides of the cavity. The cavity thus made is then filled like the first, when the instrument should be applied with much force to every part of the plug; and if at any point it can be forced into the mass, more foil must be used; and so on until it is quite solid: then proceed as before described, to consolidate the mass, applying as much force, if the cavity is large, as the tooth will bear. This should be made uniform over the entire surface, with a firm and steady hand, until the plug is perfectly solid, when the irregularities should be filed or scraped off, and more pressure applied with the plugger, so long as the least impression can be made, when the projecting portion should be filed or cut down even with the tooth. If projecting edges of the plug overlap upon the tooth, much care should be taken in cutting it away even with the walls of the cavity, when the little asperities on the surface should be smoothed down with finely powdered pumice stone, or soft wood, or floss silk; or what is much better, the Arkansas oil stone, when they can be obtained of the proper size and shape. The tooth should then be washed, and the surface well polished with a burnisher, leaving a uniform and polished surface. During the entire operation, the operator should occupy a position so as to steady the head of his patient, support the tooth, and protect the soft parts from injury or accident.

Many persons give their teeth but little thought, until, in the excess of frantic pain, they are driven to a dentist for relief. The remedy is always successful if well applied—the removal of the offending organ. But this may be the farthest from the determination of the patient; and

the dentist is required to "save the tooth," or at least to make a trial. The complicated caries of the teeth, is difficult, and usually perplexing, requiring patience, scientific acquirement and skill. The operator should not at once adopt the unprofessional plan of nerve-killing; but endeavor to allay the irritation, protect and save it. The operator should remember that the teeth, and particularly the molars, derive much of their support through the dental canal, and by destroying the nerve the vitality of the tooth is destroyed or seriously impaired; and soon may become but a dead and foreign substance in the mouth. In the front teeth more dependence can be placed upon support from the investing membrane; and in many cases they remain for many years after the loss of the pulp. Generally, if the pulp has been long exposed it becomes diseased, and an ichorous discharge is established. In this case I doubt much the probability of arresting it, and restoring the nerve to health. The capillary vessels of the denuded pulp throw off also healthy fluid, while the debilitated state of the absorbents render it impossible for them to take it up, and send it back into the circulation. In either case stopping up the outlet by plugging the cavity in the tooth would be followed with pain as soon as the fluid had collected sufficiently to press upon the nerve; inflammation of the soft parts would soon follow with alveolar abscess. If it is simply a debilitated state of the absorbents, or enlarged capillaries, the application of galls, tannin, or a weak solution of nitrate of silver, may soon bring about a healthy action; and the tooth may be saved with its vitality by applying a gold cap over the pulp, so as to prevent pressure or irritation.

But if suppuration be already established a different plan of treatment must be pursued; and it is but just to say, that they can be but temporary. Let the operator still keep in mind the importance of saving the pulp; but to accomplish this, some outlet must be left for the escape of matter. This is accomplished by capping and plugging as before mentioned, and drilling through the crown of the tooth just under the margin of the gum; or packing the foil with a wire inserted through the centre of the pulp; and when the operation is completed to withdraw the wire, leaving a canal through the plug. Either plan may do well for a time; but decay must be going on underneath the plug; the disease of the pulp be increasing; and the loss of the organ is inevitable sooner or later.

Killing the nerve may do well in some cases, but the irritation caused by this unnatural treatment, is likely to extend to the investing membrane, and severe pain, inflammation and abscess soon follow. Dr. Maynard, of the District of Columbia, advises cleaning out the canal

and plugging to the very apex of the root. To perform this operation properly requires a dexterous hand, and in many cases could not well be accomplished. I cannot speak of this treatment from experience, but from the pathology of the disease, and anatomy of the parts involved it seems quite rational. There would be no accumulation of fluid or pus, and unless active inflammation supervened, would probably be absorbed as fast as secreted; or at least so long as the membrane of the socket and root remain healthy.

The plan of treatment to be pursued, then, in complicated caries of the teeth, is, first, to use every effort to save the pulp in a healthy condition, protected from the plug by a cap of the same material with the plug. If not successful in this, urge the extraction of the tooth. If this fails also, adopt one of the other modes—either leave an opening for the exit of the secretions from within the canal, or destroy the nerve and plug according to the peculiarity of the case or convenience of the operator; and finally the forceps will complete the treatment.

But if there is already irritation or disease in the investing membrane or gum, particularly in the molar teeth, we are but trifling with the confidence of the patient, and abusing the good name of the profession by tampering with it.

Clarksville, Tenn., Sept. 3d, 1849.

(Communicated.)

DEATH OF MR. JOHN BURDELL.

John Burdell, dentist, late of Union Square, New York City, died on the 11th of March, 1850, of consumption, aged 44 years. Mr. Burdell was born in Oneida County, N. Y., and came to this city at the age of 22 years, where he spent the remainder of his life. He commenced the practice of the dental profession about the year 1830, and continued this pursuit up to the time of his death. In May, 1833, Mr. Burdell removed to Chambers street, where he succeeded Dr. David Rosseter, a well known and popular dentist, who had just retired from the profession with an ample fortune. At this period, we can commence the date of the practical career of Mr. John Burdell as a dentist. Dr. Rosseter had been engaged in dental practice for more than thirty years, and was cotemporary with E. Parmly, Greenwood, and the elder Parkhurst; and to follow in the path of such a predecessor, opened a wide and ample field for the young and enthusiastic aspirant, who, taking advantage of circumstances, blended the practice of Dr. R. with his own, and as the result proved, became one of the most popular and extensive

dental practitioners in the United States. Having a mind deeply imbued with the principles of religion and virtue, and entertaining a high sense of honor, he was looked up to by all those who knew him as a model of moral rectitude. He made many and decided improvements in dental practice, more particularly in the method and manner of plugging cavities between the teeth.

In the year 1836, he was married to the youngest daughter of the Hon. William Alburty, by which marriage he had four children, the wife and three of whom survive him. Mr. and Mrs. Burdell lived happily together till about the year 1843, when a separation occurred and from that time up to his death they had not either lived or spoken with each other. Mrs. Burdell commenced proceedings in the Supreme Court for a separation, which was granted, but the custody of the children were awarded to the father, and the mother soon after removed with them to the State of Pennsylvania, where they now reside.

In the year 1839, Harvey and John Burdell published a work in two parts, entitled, "Observations on the Structure, Physiology, Anatomy, and Diseases of the Teeth," and in the second part of this volume, Mr. John Burdell thus expresses his views on the subject of dietetics: "Man is a frugivorous animal, and was intended by his Creator to subsist upon fruit and vegetables, the natural productions of the earth," and that, "when he departs from this great first principle, he violates the laws of nature; and hence the diseases of the teeth, as well as other maladies which 'flesh is heir to.'"* Although many of the views and doctrines of Mr. Burdell were erroneous, yet he himself never swerved from them. For the last fifteen years of his life, he did not taste the least particle of animal food, and he was so abstemious, and careful in his regimen, that many persons were led to believe that he literally starved himself to death; such, however, was not the case, for on a *post mortem* examination, which the deceased requested should be made, the fact was revealed, that an extensive disease of his lungs was the predisposing and immediate cause of death, as all the other organs essential to life, were comparatively healthy. •For several years previous to Mr. Burdell's death, many persons were of the opinion that he was of unsound mind, but on a careful investigation such inferences must have been drawn from his eccentricities and enthusiastic disposition. On the subject of religion, a perfect change occurred during the latter years of his life, for

* In 1847 Mr. John Burdell also published a popular work entitled "Teeth, their Structure, Diseases and Treatment," containing a fuller development of his views, in relation to dietetics, hygiene, &c. He also published for several years a Dental Almanac in which he advocated similar views.—[ED. RECORDER.]

he affirmed during his last illness, that there was no soul separate from the body, and that when he died he should sleep till the morning of the resurrection, and that then he should be raised and dwell here upon this earth as an immortal being; but if found imperfect, he should, with all the wicked be destroyed, or exterminated. He requested that his body should be deposited in the fresh earth, and not in a vault, amid the miasma of putrid bodies. He was buried at Greenwood Cemetery. In his last will and testament, he appointed his brother, Dr. Harvey Burdell, sole administrator and guardian of his children.

EXTRACT FROM DR. FOSTER'S ADDRESS.

“DOUBT—I repeat it, *doubt*; not your ability to do well; not, that the knowledge you have here acquired is your best capital; not, that it is possible for you ultimately to reach the highest attainable point of professional excellence. The *divine law*, which regulates and governs all space, all matter and all mind, happily fixes no limit to man's energies, nor interposes any barrier to his progress. Yet again, I say, *doubt*; doubt, to some extent, the *permanency* of your operations. Do not feel sure, (I speak particularly in reference to the operation of *filling teeth*,) do not feel certain that any operation is to be permanent. Do not say to your patient, “*You may be assured that filling will last you ten, twenty or fifty years.*” Though you may be as sure of its durability as man can be of anything here below, do not say it. Doubt even when you think there is the least occasion for doubting. You may wonder why I lay so great a stress upon this; the secret of your professional improvement and success depends in no small measure upon it. Believe me, there is no more fatal error that you can fall into, in your early practice, than an absolute confidence in your own infallibility. Let the thought cross your mind, and ask yourselves the question, have I done all I might have done, in that last operation, to make it permanent? Always have the impression indelibly fixed in your mind, that there is something more to be acquired, some little improvement continually to be made.”

REMEDY FOR TOOTHACHE.—Mr. James Beatson, in the Medical Times, recommends a solution of Gum Capal in Chloroform as a remedy for pain in decayed teeth. The cavity should be cleaned out, and a bit of cotton, moistened in the solution, introduced into it. The Chloroform removes the pain and the Gum Capal resists the action of the saliva. It is worthy of trial.

APRIL, 1850.

POSTSCRIPT FROM A SUBSCRIBER'S LETTER.

P. S. Permit me, through you, to give S. M. Hobbs, my professional hand, for his article in the Recorder, (Jany. '50) on the Turnkey. What he says about it I know to be true,—the opinions of many other dentists to the contrary notwithstanding. I have met with *dentists* (I do not give the name to every one that honors himself with it,) who say, "that the key is a relic of barbarism." It may be so, gentlemen, but has modern intelligence, with its hundreds of crooked and curved forceps, succeeded in making an instrument, or *instruments* that can, or will supersede the key, in the hands of those *who know when and how to use it?* A.

I have seen Dr. Evans' Amalgam. *It does not become as hard as a good gold filling*, at least not as hard, as what I conceive, to be a *good gold filling*. I think it will do to fill with, where the filling does not come in contact with the food, while being masticated. It has one advantage over silver amalgam, and that is, that it will not become black in the mouth, which, doubtless, you will admit to be a *considerable advantage*. B.

Thanks to the "Committee on Impressions," of the N. Y. Society of Dental Surgeons, for their Report. You can hardly appreciate the difficulties we back-woods dentists labor under, for want of "mutual intercourse, we—that is some of us—have one consolation at least, and that is "The Dental Recorder," without which, or some such journal, we should soon become barbarians. A word to you about plate work, with clasps, and I shall have done, I make my mineral impressions in sand, and after I have struck up my plate, the next thing I do is to fit my clasps, then fit the plate to the clasps, then fit the teeth to the plate, and then solder the clasps and teeth at the same time, which I think decidedly less troublesome than to solder on the clasps first, and then fit and solder on the teeth. C.

J. F.

Remarks on the Above.

A. We commenced the practice of Dental Surgery, a few years before Dr. J. F. Flagg. published in the Boston Medical and Surgical Journal, a description, with illustrations, of his complete set of forceps for extracting all the different classes of teeth. Very soon after, we procured

the entire set and begun to use them. Up to this time the turnkeys for molars and bicuspedes, and a straight pair of forceps for incisors, were our only extracting instruments. For several years after procuring the forceps the turnkey continued to be a favorite instrument in our practice, although the forceps were continually gaining ground of it, in our estimation. After Mr. J. D. Chevalier had made many improvements in the forceps he worked over our entire set, making the points thinner and slimmer, and adapting them better to the necks of the teeth. This gave us new confidence in the forceps, and again weakened our attachment to the turnkey. At length, about the year 1843, Mr. Chevalier constructed for us an entire new set, combining all the improvements which he had then made, and some suggested by ourself.* About the same time we constructed a set of elevators for removing diseased and loosened fangs from different parts of the mouth. The result was a complete victory over the turnkey, for since that time, although it has been constantly laying by, it has never been used by us but twice, the last time more than four years since. Such has been our experience, without any preconceived opinion, but a single determination to use those instruments for extracting teeth which succeeded best in our hands. ‡

With these views we must say, that when we first heard Mr. Hobbs' "Voice for the Turnkey," we thought it sounded very much like "a voice from the toobs," but we are pleased to see that others can use it successfully if we cannot. With the forceps we seldom fail to remove the tooth on the first attempt, but with the sound of the "voice from the turnkey" come up visions of a long array of crowns severed from their fangs, or with but one, or perhaps two, where there should have been three, remaining, of large slivers from the alveolar process, lacerated gums, &c.

B. The fillings, composed of an amalgam of cadmium and tin, which we have seen, after several months trial, look very well and appear to answer an admirable purpose; but sufficient time has not yet transpired since its introduction into this country to fully test its merits. Mr. Evans, who first introduced it to the profession, has less confidence in it now than he had after using it only a few months. He has found that he recommended it too highly, although he never considered it a substitute

* Among the latter we claim that of bending the handles of the forceps for the right and left upper molars, so as to make them stand parallel with the points. Previous to this they were made with only one crook, to avoid the lower jaw, by adding the second great power and command were given to the instrument. The first one was bent by Mr. Chevalier's forger, after the instrument had been polished and used for some time, while we stood over the anvil giving directions and taking the responsibility.

for gold. In his last communication to the News Letter he says: "Finding it to differ so much in different cases, I am induced to regard it as at least an uncertain article. I do not feel satisfied to use it, even as an expedient under such circumstances; having no confidence myself in its durability. I do not feel justified in recommending its use to the profession." Such is now the opinion of Mr. Evans, but it is too late for him to influence the American Dentists for the article is now selling rapidly, every one being desirous to test it for himself rather than trust the opinion of another. Under these circumstances we may expect, after sufficient time has elapsed, an impartial verdict.

There are a few of the faithful still remaining, though most of them have backslidden, who have steadily followed their leaders through good and evil report, and are ready at all times to repudiate any kind of filling for teeth, containing quicksilver, while some of the excommunicated contend that the silver amalgam is better than that of cadmium and tin. Considerable improvement has been made in the silver amalgam by the addition of tin, and by using materials in its manufacture chemically pure, and thoroughly washing in alcohol while mixing them. That which is most approved now by many of the best dentists here, is composed of about equal quantities of precipitate of silver and fine fillings of chemically pure silver; to these, when combined with pure distilled mercury, by thoroughly triturating in a wedgewood mortar, add a small quantity of tin-foil. We have seen fillings prepared in this manner which had been in the mouth several months, and still they had not changed color in the least, but remained as white as when first inserted. This is a great improvement upon the old inky amalgam which was formerly used, and avoids all possibility of any mercurial action being induced in the system upon the theory of oxidization and absorption into the circulation. We advise those who use amalgam in their practice to try the tin with it.

c. With all due deference to our correspondent we must say, that we don't like his rapid way of doing artificial work; we much prefer the slow and careful method of temporary fastenings recommended by Mr. C. T. Cushman, and published in our January number. We have always made plaster casts, having teeth when clasps were to be used, with great care, then fitted and, in simple cases, soldered the clasps on the cast, then tried the plate into the mouth and adjusted the whole to the gums and teeth, before fitting the teeth to the plate. Even when following this plan, and with the greatest care we are sometimes obliged to change a clasp after it is soldered to make it fit the tooth as perfectly as is desirable. Too much pains cannot be taken to properly execute

this part of the operation of inserting teeth with plates and clasps, as the comfort of the patient, and the durability of the teeth to which clasps are attached depend almost entirely upon it. However expert and dexterous a dentist may be in fitting to a plaster model, and we acknowledge that there is a great difference in them, we still believe that the best workmen can do better to fit to the teeth themselves, and in this step of the operation too much pains cannot be taken. How often do patients complain of the drawing of the teeth by clasps, or of soreness and loosening of them soon after the plate is inserted, and in almost all these cases the trouble may be directly traced to badly filled clasps, which if not remedied will soon ruin the teeth to which they are attached.

AMERICAN SOCIETY OF DENTAL SURGEONS.

This Society held a Special Meeting in Baltimore, on the 25th of March. We have not seen any published report of the proceedings but learn, from private sources, that the attendance was not large, though most of the leading members were present. Notwithstanding the "*dissecting knife*," has been so freely used by the Society, there seems to be some "obstacles still interposed between it and that complete success anticipated by its original founders."

We learn that Mr. E. Townsend, of Philadelphia, read a paper before the Society, in which he took the bold and manly ground that its action, in reference to amalgam, which resulted in so "liberal use of the *dissecting knife*" was highly *inexpedient*, and that unless the Society took the back track and rescinded the resolution requiring every member to abstain from the use of amalgam, and protest against it, its days were numbered, and it must soon begin to wind up its concerns and prepare to die with decency. He declared, so we are told, that good dentists, good men, and good and faithful members of the Society had been either expelled under these injudicious resolutions, or been compelled to resign, and that many other dentists, good and true, stood ready to join the Society, if these resolutions could be rescinded, which he earnestly recommended.

We are also informed that several members who were the most active and efficient in promoting these expulsive proceedings avowed their willingness to have the compulsory part rescinded, providing the Society's decided disapprobation of the use of amalgam remained upon the record. A Committee was appointed to take the subject into consideration, and report at the next meeting.

Such is the purport of the proceedings upon this subject at the late

meeting, so far as we have been able to learn them, and if true, they present the first sign of prosperity to this Society, which has been manifested since the "liberal use of the *dissecting knife*" in 1847.

We do most sincerely hope that the views of Mr. Townsend may be fully carried out, not so much for the honor and success of the Society, (although, when properly managed, it has been, and may again be the means of improving the practice and elevating the standard and character of dental operations throughout the world) as for the credit of the whole dental profession. If the American Society adopts the course recommended by Mr. Townsend and rescinds the obnoxious and arbitrary amalgam resolutions, it will be a tacit acknowledgment that they have done wrong; for, in a question involving the interests of others, duty and expediency can never be separated without striking at the foundation of morality and justice. The question, therefore, recurs at once to every thinking mind, what course will the Society adopt towards those who have been expelled under the force and spirit of the resolutions which it now rescinds? We shall see. Nothing has ever made us so much ashamed of being a *dentist* as to see those who stood highest in the estimation of the public, many of them deservedly so, and who possessed, no doubt, honestly, a wish to do all in their power to elevate and ennoble the profession of their choice, among the arts and sciences of the civilized world, falling out by the way, and exhibiting the same intolerance and bigotry, and enacting, as far as they had the power, the same scenes of persecution which were inflicted by bigots and sectarians two hundred years ago.

Ignorant and unprincipled men we expect to find in every trade and profession; let them alone and they sink into merited contempt and insignificance; but once attack them or condescend to reply to their attacks and you elevate them to your own level; our way is to heed them not so long as we can point to those who are wise and good and true; but when these are eclipsed by folly, conceit or dogmatism there is little left to sustain or ennoble; our hope, and faith must then rely, not upon the present, but the future. •

TO SUBSCRIBERS.

"It becomes our painful duty" to remind our subscribers that the present volume is now more than half published, and many of them are still in arrears. It depends upon them to say whether the work shall be sustained, which cannot be done without their aid.

NEW YORK DENTAL RECORDER.

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SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.

Vol. IV.

MAY, 1850.

No 3.

PATHOLOGICAL RELATIONS OF THE MOUTH.

BY PROF. W. R. HANDY, M.D.

IN the last number of the Recorder, we gave copious extracts from Prof. Handy's paper on the Anatomical and Physiological Relations of the Mouth, but for want of room the remarks which we have to make on the importance of a knowledge of pathology, with extracts from his article on the pathological relations of the mouth, were necessarily deferred for the present number. Although not a practising dentist, we believe, yet Dr. Handy has long been connected with the Baltimore College of Dental Surgery, as the Professor of Anatomy and Physiology, this has brought him into intimate connection with both dentists and physicians, and afforded him an opportunity to ascertain the defects in the education of both, and to attribute these defects to their legitimate causes. In reference to the very common ignorance of physicians of disease of the teeth and its causes, he has the following which is unfortunately too true :—

“ It is an unfortunate but nevertheless notorious fact, how widely separated these two kinds of relations, (the Pathological Relations of the different organs of the Mouth and the relations which diseases of the mouth sustain to every part of the system,) have become, and what an independent and unnatural attitude they have been made to assume towards each other, in their practical application—by both of the two classes of professions just mentioned. In consequence of which, we think it may be safely asserted, that an immense amount of accumulated suffering has occurred, which otherwise might have been avoided : the true character and seat of many diseases have remained undetected, and their successful treatment as a necessary consequence, an utter failure. So true is this assertion, that it is only necessary to state here, in general terms, as we intend in another place to present some cases in proof, that it is known to every well informed physician and dentist, that cases have occurred and are recorded, where patients have, year after year, taken medicine of every kind, and from the hands of the greatest variety of physicians, and all without avail—that such class of patients have, further, by the advice of their medical attendants, gone in pursuit of health and for the removal of their diseases, pronounced to be beyond

the reach of medical and surgical skill—we say have gone, by the best medical advice, for the cure of their several cases to distant regions, crossing seas, scaling mountains, visiting springs, taking every variety of exercise, and every variety of diet, and yet all of no avail—as they have severally returned home with little or no improvement in their disease, which still exhibits the same character and unmanageableness as when they started on their tour. By some lucky or accidental suggestion, the *teeth* are suspected as the probable cause of the whole mischief, and with some degree of plausibility, as everything else had failed to give any relief.

“The suggestion thus, is acted upon—skilful dentists are employed, and by correcting the diseased condition of the teeth and mouth, the before incurable diseases of each become readily curable—the general health is speedily restored, and the whole of this wonderful change brought about simply by the application of a little dental skill.”

* * * * *

“And here the question obtrudes itself, and most especially upon the general and unprofessional reader, viz. how is it possible that the great mass of physicians, and among those many of our best educated and most scientific men, could be guilty of such an oversight, in not at all, or but very slightly, looking to the mouth, as they do with all the rest of the body, in their usual most searching examinations for the seat and nature of every disease? The question is asked, how is this accounted for, and why is it so? The only satisfactory explanation, it seems to us, is found in the fact, that very few medical colleges spend much if any time in investigating the diseases of the mouth and the dental apparatus proper; so that the student graduates and enters the profession, not only with scarcely any knowledge of even the existence and character of dental diseases, but further, is strongly impressed with the dangerous idea, that a knowledge of such diseases must be of little value, and their influence in the causation of disease in every other part of the system, must be of the most trifling importance, since they scarcely ever heard any of the professors even mention such diseases in any of their lectures. It does not, therefore, appear so strange, that physicians, entering practice with such impressions and opinions, should fail to discover the cause of disease when seated in the mouth; since their attention has never been directed to such a source, as being capable, by its pathological relations with the rest of the body, to justify even the suspicion, much less to have their attention seriously directed to such a quarter, as the origin of disease elsewhere located.”

If the physician here receives merited censure, the dentists also come in for their full share in the following extracts:

“If we now turn to the practical dentist, we will find that the general and special relations of the mouth are still more widely separated than is done by the physician—for, with the exception of many honorable and scientific dentists, it is a notorious fact that the great mass of this profession can lay no claims whatever to any scientific knowledge or skill in their calling—that they are most profoundly ignorant of even the simplest rudiments of anatomy and physiology—have about the same idea of

the relation of the mouth with the rest of the body, that they have of a nail with the plank into which it is driven—and accordingly with such practical notions they enter the mouth, and go to work upon the teeth, just as they would upon a block of granite, and with as little concern and knowledge for results, as a blacksmith has in the shoeing of a horse.

“And without wishing, by any means, to do the slightest injustice, we would seriously ask if the above comparison is not in strict accordance with truth? And if so, the only legitimate and unavoidable inference for all such would be dentists, seems to be, a wilful and total ignorance of the true character of the mouth and its several organs—being regarded by them simply as so many mechanical bodies, destitute, in every practical sense, of vitality, unorganized, and having little or no connection with the rest of the body, for any of the diseases to which they are subject.” * * * *

“With these general remarks upon the too great indifference, neglect and ignorance, as manifested both by dentists and physicians, in reference to the reality—we mean the substantial and practical reality, of the *pathological relations* which the mouth has with every other part of the system, and the whole system has in turn with that of the mouth,—we shall now proceed to notice more particularly the different *varieties* of the *pathological relations* of the *mouth*, with a view to demonstrating still more conclusively, and fortifying, if possible, still more strongly, the propositions already advanced.”

The Dental Recorder has always been opposed to the divorce of medicine and dentistry, believing with Dr. Handy, that “to have a proper and scientific acquaintance with the true character of diseased states of the teeth, as well as to indicate the proper plan of treatment for their correction, it is absolutely necessary for every dentist to have at his command all the knowledge and all the resources of anatomy, physiology, pathology, and practice, before he can intelligently trace cause and effect, and before he can intelligently apply the proper remedial measures—in a word, the studies of the dental student should not be a whit behind the medical—as the relations of the dental organs are co-extensive with all the rest of the body, and, consequently involve a knowledge of the whole, for the most scientific, successful, and proper treatment of any particular part.” If this be true, and it be true, that physicians should also understand the nature and treatment of the diseases of the teeth, we have only to remedy the defect in our medical schools, which Dr. Handy points out in the extract quoted above, by the appointment in each, as has been done in some of the Hospital Schools in England, of a teacher of dental science and the union of medicine and dental surgery would at once be consummated.

We have no doubt but that the Baltimore College of Dental Surgeons might have, in a very few years, more students than any medical

school in the South, if it would appoint a full core of medical professions and procure the requisite authority to confer on its graduates the degree of Doctor of Medicine as well as Doctor of Dental Surgery. In the brief space of time allotted to the study of medicine, the student is not expected to perfect himself in the science, he merely acquires a knowledge of those principles which are to guide him in his investigations at the side of his patient. He is but just prepared to study to advantage, and should be equally well qualified to practice in any department or speciality, that he may select for his future field of labor those to which his taste and genius best adapt him.

After these reflections upon the want of knowledge in both physician and dentist, Dr. Handy proceeds as follows :

Variety of Pathological Relations of the Mouth.

“ A division of this class of relations has already been made into *special* and *general*.

The *special variety* comprises all those diseases and morbid irregularities of the various organs belonging to the mouth, constituting the *dental apparatus*.

The organs included under this head are very numerous and important ; so numerous as to present every variety of form, size, situation and structure—for here is seen bone, muscle, ligament, blood-vessel, nerve, gland, mucus, cellular structures, &c., in a word, all the anatomical elements found in any other part of the body ; and, secondly, so important as to comprise in their functions both of the great divisions of the body, as made by Bichat, viz. the *animal* and *organic*.

The organs of the mouth, thus having the most extensive range, both in structure and function, and containing as it were, a sample of every other structure and function, should, consequently, be liable to equally as great a diversity in the diseases to which they are subject, as all the rest of the body, both medical and surgical. And such is found to be the fact—the differences observed resulting rather from modifications of structure and function, which arise from the difference of arrangement in the same anatomical elements, and to differences of relation as to the various physical bodies with which all are in a greater or less degree connected. Hence we find inflammation, fever, suppuration, ulceration, fracture, dislocation, &c., are as common to the mouth and its various organs as the rest of the system, modified according to the simple differences just noticed.

Of the diseases of the organs of the mouth, arising from the special relations among themselves, it is only necessary here to simply give a brief summary of the principal, as these relations are generally admitted, and their diseases as generally recognized and acknowledged. We may mention, first, *caries* of a tooth, as frequently involving not only its own destruction, but likewise extending its diseased influence to that of its fibrous envelop and the alveolar socket—thence to the gums, and still onward to its neighbor teeth and the maxillary bones—producing inflammation, with all its consequences, &c., in all these various parts, if not arrested.

Exostosis, another form of diseased tooth, and consisting in an osseous excrescence found upon its root; it is well known, is not an unfrequent cause of disease in the antrum of Highmore or the maxillary sinus, as well as the cause also of the most violent tooth-ache.

Even the *loss* of a tooth, it is asserted upon the best dental authority, is followed almost invariably by disease in that of its antagonist, thus seeming to show that constant mechanical pressure forms one of the laws necessary to dental health.

But this loss of one, and especially of several teeth, together with inflammation of the tonsils, and the congenital diseases of cleft palate, hare-lip &c., not only extend their morbid influence to, but it is well known very materially derange all the functions of speech, prehension, suction, mastication and deglutition—functions most especially belonging to the dental apparatus. We will now trace diseases of the mouth a little further, and endeavor to show that the pathological relationship and morbid influence of the dental organs is by no means confined to themselves.

Dr. Koecker relates a very interesting case, and a very strong one to the point we wish to illustrate—and of which we can only give a very hasty outline :

It is the case of *doloureux*, or neuralgia of the face, in a gentleman who had suffered “upwards of ten years” with this disease. The painful symptoms are described as unparalleled tortures, and “his whole constitution, but particularly the glandular system, was so much affected as to produce swellings and indurations in the most distant parts, accompanied with great pain and inconvenience; but its effects on his head were frequently agonizing; indeed, he assured me, so great were his sufferings, he had been so far driven to despair, as to implore heaven to relieve him by putting an end to his miserable existence. He repeatedly applied for the best medical and surgical advice the country could afford, but the real cause of his suffering was not detected; and such was the character of his disorder, that it baffled every exertion, and all the remedies which were applied for many years.” A sea voyage and a trip to his native country were also tried in vain. At this period, the distinguished surgeon, Mr. Lawrence, was consulted, who, suspecting “the teeth to be the chief cause of his malady,” recommended the patient to Dr. Koecker for the proper treatment.

The Dr. tells us he found “his gums and all his alveolar processes more or less diseased,” and the teeth in such a condition as to require the immediate extraction of thirteen. A gentle stimulant lotion to the mouth, and the removal of the tartar from the rest of the teeth constituted the balance of the dental treatment, and we are told by the author of this case, that in less than one month the patient was “restored to perfect constitutional health.”

In the July number 1849, of the American Journal of Medical Sciences, several cases are reported by Dr. Hays, of the effects of diseased teeth upon the eye. Our limits will only permit us to transcribe but a portion of one of the most interesting of these cases.

A gentleman, cashier in a bank of Wilmington, N. C., underwent, it seems, great fatigue, and taxed his eyes very severely, “in arranging

the documents which were rescued from the flames," during an extensive fire in that place. "He soon experienced great intolerance of light, and some inflammation of the conjunctiva. For this he was treated by the physicians in his vicinity, but with only temporary relief except for the inflammation. He subsequently visited Virginia and Raleigh, N. C., for medical advice; but from none of the remedies or plans of treatment employed in his case did he experience the slightest permanent benefit; on the contrary, the photophobia increased to such a degree as to render exposure to the least light perfect torture." In this condition he arrived in Philadelphia, to consult Dr. Hays, who states that he found the patient "laboring under the most aggravated degree of photophobia. In a room so perfectly dark that the Dr. was unable to see any object whatever, to the patient the light reflected from his own hand was intolerable, and that from his shirt bosom caused so much suffering, that he was obliged to keep the latter constantly covered. So exalted was the sensibility of the retina, that in the darkened room, where Dr. H. could not see his hand held up before him, the patient was able to distinguish the objects around him, even the figures in the carpet." On examination, "scarcely a trace of inflammation of the eyes, or of any other apparent disease," was seen. The stomach is stated to have been a little deranged, and was corrected, without, however, any relief to the insufferable intolerance of light. The Dr. was now "induced to suspect the teeth," and it was found on a careful examination that several were "defective but not painful."

By his advice, a couple were extracted, but without giving any relief. On a second examination of the mouth, "upon striking one of the lateral upper incisors nearest to the eye most affected, with a key, the patient winced as from pain, and stated that he had often experienced a disagreeable sensation to proceed from that tooth. The tooth was extracted. With the loss of the tooth, a most disagreeable gnawing or pinching sensation at the back of the eye, which had previously tormented the patient ceased. At the root of the tooth was found a large abscess, while the periosteum of the alveolus was thickened. From this time the morbid sensibilities of the eyes rapidly diminished, and the patient was soon after sufficiently recovered to return home, and resume his duties as cashier of the bank."

This case is doubly interesting and doubly instructive: First, to the dentist, in showing most conclusively that the organs which solely engage his attention, by no means limit their morbid influence to themselves, but extend their pathological relationship to other organs—and frequently, as in this case, producing in them a series of morbid secondary symptoms of the most violent character—and far more so than the primary set belonging to the teeth, the original seat and source of all the mischief. And further, practically instructive, as it teaches an earlier extraction than the very small amount of pain and visible disease of the teeth themselves would seem to warrant—and thus should lead us early most strongly to suspect derangement of these organs, and especially so, when medical treatment has failed to afford relief.

And, secondly, this case is particularly instructive to the physician,

as it shows the too great neglect on his part in overlooking the mouth, as the unsuspected but frequent cause of disease elsewhere situated—of disease entirely unmanageable without the knowledge and detection of this cause—but with this knowledge, and the application of proper dental treatment, found readily to yield. We say this case furnishes a solemn lesson to every physician—as it plainly involves his own reputation, as to his requisite skill or great negligence in determining cause and effect—in other words, in finding out the real disease of his patient.

Jourdain and others have recorded inflammations of the eye, and the ear, as originating from morbid sympathies with the teeth; dyspepsia and gastric irritation also frequently arise from this source; and Dr. Rush speaks of having two cases, the one of *epilepsy* and the other of *rheumatism*, both of which were dependent upon diseased teeth, and that both were cured by their extraction.

Every one is familiar how the *irritation* from teething may be so violent upon the brain, as not unfrequently to cause delirium, terminating in convulsions, and it may be in death. Many other examples might be cited, but these are sufficient for our purpose, which is simply to show, under this head, that the pathological relations of the mouth are by no means limited to the dental organs themselves—but extend their morbid sympathies to other and distant parts—a *practical fact* which we humbly think cannot be too strongly impressed upon the attentive reflection of every dentist, physician and student—who is engaged, or expects to be engaged in practice.”

We should be glad to publish the whole of Dr. Handy's remarks upon the relations which the *blood* and *distant organs* primarily exert upon the mouth, such as the formation and growth of the teeth, the different degrees in their density constituting different degrees of predisposition to disease, the effects which scurvy produces upon the gums, &c., but our limits will not allow. The following are examples of pathological relations of the kind referred to:

- 1st. Tooth-ache, arising from an affection of the uterus.
- 2nd. Tooth-ache from gastric irritation.
- 3d. Tooth-ache, imitating intermittent fever.
- 4th. Locked-jaw or trismus from a wound upon the extremities.
- 5th. Paralysis of the mouth, either partial or total, from disease of the brain or the seventh or fifth pair of nerves.
- 6th. Secretions upon the tongue and gums, of almost every color, viscosity and fetor—from fever of some form or other.
- 7th. Aphæ, from disordered stomach.
- 8th. Ulcers of the palate and other parts of the mouth, from syphilis—and so with numerous other diseases of distant organs, and those of a constitutional character—all alike furnish in greater or less degree so many examples of this general pathological relationship of the whole system, with the dental apparatus, as well as it is shown that it has with every other part.

In conclusion, if the propositions advanced, and the illustrations given in their support, in any way accord with the truth, it seems to necessarily

follow, that every dentist, and every dental student should feel it his duty to thoroughly study the whole and every part of the body, and that too, both in health and disease, as the only trustworthy and safe foundation, upon which to rear an after superstructure in practice, that will combine at once all the harmony and beauty of scientific and moral proportions, and thus embody in its manly form, every element characterising the dentist of science and humanity, and thus fitting him, also, most efficiently, to go out on his high mission—of taking part with that noble profession, a member of which he certainly is, and whose common and divine art, alike consists in healing the sick.

We are pleased to see that many of the sentiments and opinions advanced by Dr. Handy coincide with the course pursued by the Dental Recorder, and the views expressed by its editor in the address which he, some time since, had the honor to deliver before the Society of Dental Surgeons of the State of New York. In our small, unpretending sheet, we have endeavored to advance no principles, and advocate no practice, which would not conduce to the elevation and consequent improvement of our profession, and are comforted whenever we find those who deservedly stand highest in connection with Dental Surgery, sustaining us by advocating similar principles, even upon a single subject connected with the profession. ED. RECORDER.

THE TESTIMONY OF N. C. KEEP, M. D., AND DR. LESTER NOBLE.

The trial of Prof. John W. Webster, for the murder of Dr. Parkman, has created a profound sensation throughout the whole country; and as the identity of the body depended mainly upon the testimony of Dr. Keep, a practicing dentist in Boston, who had constructed Dr. Parkman's teeth, we have thought his testimony of sufficient importance to publish it entire.

The previous reports of Dr. Keep's testimony, which have been published throughout the length and breadth of the land, contain many errors, which render some parts unintelligible. The following, from the report published by Sampson and Phillips of Boston, has been revised by Dr. Keep, for the DENTAL RECORDER, and may be relied on as strictly correct. Those who heard this testimony and saw the demonstration of its truth and verity by the models, and the peculiar and striking adaptation of the *portions found*, to the place which they were made to fit, are, so far as we have heard, entirely satisfied that there could be no mistake.

DR. NATHAN C. KEEP, *sworn*.—Have been in the practice of dentistry for nearly thirty years. Give attention both to natural and artificial teeth. Knew Dr. George Parkman as early as 1822. When I was a

student with Dr. John Randal, Dr. Parkman was frequently there; and on one occasion he was quite sick; Dr. Randal attended him. When he recovered, he was at Dr. Randal's very frequently, and I was acquainted with him at that time. As early, I think, as 1825, he employed me as his family dentist; and since that time, whenever he needed assistance, I have been the person on whom he called. Was shown the blocks of mineral teeth by Dr. Lewis. This was on my arrival from Springfield in the cars, the Monday after Thanksgiving, about one or two o'clock. I recognized them as the teeth I had made for Dr. Parkman, in 1846. Dr. Parkman's mouth was, in many respects, very peculiar; differing in the relation that existed between the upper and lower jaw so peculiarly, that the impression left upon my mind was very distinct. I remember the peculiarity of the lower jaw, with great exactness.

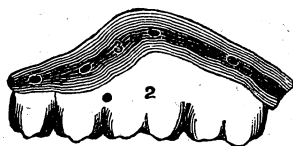
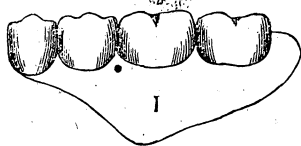
The circumstances connected with the teeth being ordered, were somewhat peculiar. The first question asked by Dr. Parkman, when the teeth were ordered, was, "How long will it take to make them?" I took the liberty to ask why he was so particular to know. He told me that the Medical College was to be opened, and that it was expected of him to be there, and perhaps to speak; and he wanted them by that time, or else he did not want them at all. That time was a very short one; the peculiarity of the mouth made it a case requiring as much skill as could be used. I began to do it as soon as possible; gave a large part of my attention to it, from day to day. In consequence of these circumstances, and the shortness of the time, and the close application I gave to it, I remember very distinctly what was done, more than in ordinary cases. I proceeded, in my usual mode, to take the impression. The first step was, to take an exact *fac simile* of each jaw, with wax. A model of the lower jaw was made from this impression, taken with wax, while in a plastic state. The metallic dies were made from the plaster cast [Dr. Keep exhibited the original "pattern" plates which fitted the models]. When the two gold plates were fitted to his mouth, with soft wax on each, I requested him to close it until the expression, feeling, &c., indicated the most natural distance between the upper and lower jaw; in this manner, the relative position of the upper and lower jaws was obtained.

A great irregularity on the left side of the lower jaw of Dr. Parkman gave me great trouble. Each set of teeth were made in three blocks, and then joined to the gold plate. There were spiral springs that connected the two sets of teeth, to enable the patient to open his mouth and close it with less danger of the teeth being displaced, than there would have been without the springs. There was an accident which injured one of the teeth in the front block, and delayed the finishing of them until near the end of the night before the opening of the Medical College. They were finally finished, by setting my assistant at work on them with all the assiduity he could, at just thirty minutes before the opening of the Medical College. My assistant was Dr. Noble. When I next saw Dr. Parkman, he said that he did not feel that he had room for his tongue. In order to obviate that difficulty, I ground the block of the lower jaw on the inside, to make it lighter, and furnish more room for the tongue. This grinding, at the time, was not accomplished with

so much ease. The teeth being on the plate, we could not grind on a large wheel. We had to grind on a very small wheel. This grinding removed the pink color that represented the gums, and also the enamel from the inside of the lower teeth. The beauty of it was defaced by this grinding. The shape left by the grinding was very peculiar, because of its being ground on a small wheel, smaller than a cent.

I saw Dr. Parkman frequently. - The last time I saw him professionally was, as near as I can remember, about two weeks previous to his disappearance. He called late in the evening, about ten o'clock. It so happened that, not being very well, I had retired for the night. The person who went to the door, seeing Dr. Parkman, asked him in, and went up and told me that it was he. I sent word to him that I would come down as soon as I could. He told me his trouble. I took his teeth, both upper and lower, examined them, and put on a new spring. He staid about half an hour, when he was ready to go home. I had no more professional intercourse with him at all. I went into the country to pass Thanksgiving, at Longmeadow, and returned on the Monday morning after Thanksgiving. Arrived home, I was told that Dr. Lewis wanted to see me, and he presented me with these remains of mineal teeth [showing them], with the request that I would examine them. On looking at them, I recognized them to be the same teeth I had made for Dr. Parkman. The most uninjured portion that remained was the block belonging to the left side of the lower jaw. Several other parts had been very much injured by fire. I proceeded to look for the mould by which these teeth were made, put the metal plate upon its proper place; to this the block, most peculiar in its form and least injured by fire, fitted so exactly that there could not be a doubt it was made for that place. With the exception of a little slag on the under side of one end of the block, it fitted exactly. This block is one inch and nine sixteenths of an inch long, eleven sixteenths deep, where the jaw was absorbed most, and one-fourth of an inch deep where the plate covered the roots. There is sufficient left of these blocks to identify the place where they belonged. There is no mistake. [He then showed the mould and remains of teeth, etc.] All the pieces having been found, there were five pieces which fitted to their exact places. The only piece that could not be identified, the lower front block of two or three teeth, might or might not have been there; but it was supposed to be right, as there was no reason that it should not be so.

[The blocks of teeth, etc., were here shown to the Jury by the witness, and afterwards to the Judges. (The accompanying cuts, from a drawing by Dr. Keep, represent the left inferior block. Fig. 1.; the labial side, Fig. 2, the lingual side, showing that the block had been ground so as to obliterate all appearance of the gum. Fig. 3, the part resting upon the plate. The deep absorption of the gum was caused by wearing a small block for many years. The elevation by two roots which remained, and which Dr. Parkman peremptorily declined having extracted.—ED. RECORDER.) During the progress of Dr. Keep's testimony, the Court and the audience were affected even to tears, and Dr. Keep, particularly, was overcome with emotion.]



I found imbedded, more or less, with these mineral teeth, some very minute portions of gold, also small pieces of cancellated bone, being peculiar to the jaw-bone. I saw the teeth in the doctor's head, the last time I saw him, in conversing with him. The presumption is very strong, that these teeth were put in the fire in the head. Such is the nature of these mineral teeth, that, especially if they had been worn, they absorb small particles of water; when suddenly heated, the surface becomes charred, the water becomes steam, and there would be a report, with an explosion. I have known such explosions to take place, on heating teeth that have been worn; and when they have been worn recently, the explosion is always sure to take place, if heated rapidly. If, while in the head, they were put into the fire, only a small portion would be exposed to the heat; and as the temperature would be raised so gradually, the water would have time to escape; and this accounts, in my mind, for the teeth not being cracked, excepting the front teeth, which would have been most exposed. I have found, fused into the remains of teeth, portions of the natural jaw. All these teeth were exhibited to me at the same time.

Cross-examination. My first impression, on seeing the teeth shown me by Dr. Lewis, was, of the circumstances which I have related. Do not think I have been burnishing up my recollection since they were shown to me. I have not made any especial preparation for giving this testimony. Knew them for myself, without examining the mould. The mould of Dr. Parkman was preserved, as moulds usually are, for future use, in case of accident to the teeth.

I heard of Dr. Parkman being missing before I went into the country. First time I heard of his being missing, was the first night it was advertised in the papers.

Dr. Lester Noble, sworn.—I was an assistant of Dr. Keep, in 1846, and remained in his service until 1849. Am now pursuing my studies in Baltimore; am a student at the Baltimore College. Recollect working upon teeth for Dr. Parkman; it was in the autumn of 1846.

[Here he was shown the mould of Dr. Parkman's teeth, and recognized his hand-writing on it.]

Yes, this is my hand-writing—"Dr. Parkman, October, 1856." I did recognize these teeth. Was called to the Attorney General's room; the blocks were brought in under seal, and there I examined them. They were delivered to me for safe-keeping, and I have kept them in my pocket since, until they were called for to-day. The circumstances accompanying my recognition of them were, in the first place, the general shape of the block, which was the same that I remember to have worked upon for Dr. Parkman. Also I found on the inside a surface which appeared to be ground. At the moment I saw it, I recollected that this block of Dr. Parkman's teeth had been ground in the same way; that I saw Dr. Keep

grind them. It was after the doctor had worn them, after he had been to the Medical College with them, that he said his tongue was incommoded.

I have every reason to believe that the blocks were Dr. Parkman's teeth, and no reason to believe that they were not: have as good reason to believe it as any other fact. I have not the slightest doubt that they were the blocks I worked upon for Dr. Parkman. We were obliged to be very prompt, in making the teeth, to the time of an appointment by Dr. Parkman. They had to be ready at the time, because Dr. Parkman was sure to be there at the very moment he appointed. The time of the appointment for their being finished was, when he wished to attend a meeting at the Medical College. An accident which occurred in blocking spoiled a part of the front block; it caused the necessity of remaking it, which, of course, occasioned delay, so that we had to work upon them a large portion of the night; remember that I worked upon them almost all night. We got them finished just in time for Dr. Parkman to go over to the College with them. I went myself, in order that I might see, when the doctor had occasion to speak, how well he used them. Think it was in the early part of November, that the Medical College was opened. I rather think he did not speak; merely, when complimented for his generosity, by Governor Everett, he acknowledged it with a bow, yet I am not confident but what he said a few words. I understood that he had been liberal in a donation by furnishing the ground, etc.

Here the Court adjourned.

AFTERNOON.

The Court and Jury came in at half past three o'clock.

Dr. Noble—*examination resumed*.—The Medical College was opened in the early part of November. It was in the early part of my studies that I worked on Dr. Parkman's teeth; I began about the 11th of September. We first take the impression in wax. I made the moulds of these teeth in the plaster, and made the metal casts. Could not tell precisely how much time was spent on them; it must have been quite a number of days. Have put blocks of teeth into the fire, to see how readily they would crack, and I have never known them not to crack; they may be heated up gradually and cooled with perfect safety. Coincide with Dr. Keep as to his opinion. Some time after the fitting of the teeth,—about a year, I think,—an accident happened to them; the lower plate bent together, and had to be reannealed to the pattern. I had to heat them for this purpose, and the mark of the blow-pipe still remains.

The following extract from Dr. Keep's letter to the editor of the Recorder, will be found interesting to our readers:

"Nothing was said in my testimony respecting the composition of the teeth, not because I did not see that was important to me, but it would not be easy to explain to the jury nice distinctions of that kind.

Why should one block be nearly perfect, while five others are much injured by fire?

The theory is, that the teeth were all in the mouth when the head was

placed in the fire. That it was put in when the fire was recently kindled is not improbable. The left side of the face was down. The fuel under the head burned out, and allowed the teeth to fall to a cooler place, perhaps in contact with the grate, as that was the place where they were found. The left upper back block is the next best, or least injured, by the fire, though it is warped very nearly the curve usual in "front blocks." The right lower block appeared to have turned summerset, and fallen on the left block, lying parallel with it, but the forward end of the right was joined to the back end of the left block. The lower left back block, upper left block, and upper front block, were not discolored,—indicating that charcoal or wood was used for fuel, while they received their greatest heat. The other blocks had the marks of having been exposed to anthracite, or mineral coal fire. The gold found in the teeth helped to indicate the manner in which they lay in the furnace. All the blocks being of the same composition, their position must account for some being less injured than others.

The great moral questions,—why the most strongly marked block should be saved from destruction? Why the head should be placed on the left side, instead of the right? why the teeth were not seen to be artificial and destroyed, or thrown away? why the ashes in the furnace were not examined by the one who committed the dreadful deed, and, with the fragments of bone, removed? why, last September, after I had given directions to have a large quantity of models thrown away, I should have passed by, as *these* models were being put into the dirt barrel, stopped and saved them? why so many more peculiarities than usual exist in this case to assist memory? why these teeth, which were ordered to be used, and were used at the opening of the Medical College for the first time, should be brought three years after, mutilated,, 'tis true, but not destroyed, from that very edifice, bringing, as has been said, "testimony from Dr. Parkman's own mouth, that he had been murdered?"—I can only answer, in the language of the Attorney General, "I see in it the hand of the Almighty God."

This being the second case in which artificial teeth have been the principal evidence in establishing the identity of the murdered body, it would seem appropriate that an essay should be prepared on the legal duties of a dental surgeon; the importance of accuracy in all his manifestations, and value of records, including models, &c., of all his cases.

I hope these corrections and additional remarks may be of use to the Dental profession, and also, aid you in preparing a correct report for your valuable work.

Very truly yours,

Boston, April 22d, 1850.

N. C. KEEP.

LETTER FROM MR. J. D. CHEVALIER.

To the Editor of the New York Dental Recorder :

DEAR SIR—It is with regret that I find it again necessary to have recourse to your valuable columns, and intrude on the patience of your readers, to reply to a mass of inconsistencies, emanating from the pen of one who boasts of once having conducted a literary paper. Imprimis—where does a “Mississippian” find one word in the paragraph that he quotes from my previous communication, that conflicts with a single sentence in my letter of November 18th, 1848, which he quotes entire? Here is the paragraph: “In December, 1840, passing through Wheeling, on my way to New Orleans, I called on Dr. Hullihen, who, amongst other instruments, showed me a forceps with a screw between the beaks, which he had himself made from an old forceps, and substantially the same as that now in use, and on which I made the improvement. He expressed a wish that I would make some, which I did, shortly after my return home, in the spring of 1841, and, in compliment to the inventor, named them Hullihen’s Screw Forceps. So much for the paternity of the original instrument.”

He says, in such language, word for word, does Mr. Chevalier plead his side of the case, and quotes my letter of 1848 entire, (but which I will not inflict on your readers,) to show the other side of the question. I leave your readers to discover, if they can, the contradictory evidence contained in said paragraph and letter, or even to connect them with the rest of his article. It is true, that, in his third paragraph, he says, that the use he makes (in behalf of his employer,) of this authentic, positive and direct letter, is to show that he had filed his caveat many months before, (early in the spring of 1847,) and in the next three lines he makes it appear that it was in the summer of 1847; for he asserts that the specification embodied in his letters patent is the same as that embodied in his caveat, entered more than a year previous to the date of his patent, dated October 17th, 1848. Now, I cannot see what connection that letter has with Dr. Dubb’s caveat, nor what use that letter is in his communication, except to give his article a respectable length.

Appropos of that caveat, at every point of this controversy, *that* caveat has been brought on the tapis, but the scribes have never proclaimed to the world its natal day. The studied concealment of its date very naturally gives rise to suspicions, as to whether such an instrument ever existed, or if it did, it was of so recent date as to be of no avail in the face of the assertions (susceptible of proof,) contained in my communication in the December number of the Dental Recorder.

Although I don't intend to take advantage of a quibble to exonerate me from the charge of infringing another man's rights, (I take the higher ground of right and justice for that,) I will here state, for the information of a "Mississippian," that a caveat, (if his principal really had one,) did not give him the same rights as letters patent, inasmuch as he could not sue for an infringement of his patent, he having none, and had none when he offered to sell it to me. The caveat simply gives the privilege of a hearing before the Commissioner of Patents, in case of application by another party for a caveat or patent for a similar article; and the caveat or letters patent are awarded to the party proving priority of invention, without regard as to who was the first applicant.

"Mississippian" complains that the remaining portion of my communication is a continuous attempt to create the impression that Dr. Dubbs was purloining, piece meal, the improvements of others. [I think it will require nearly as much ingenuity to discover such an intention in my communication as he has exhibited to conceal the real object of his communication. It is a cheap medium of advertising, in writing which he is more at home than in the editorial chair of a literary journal, where such expressions as these, "This is the farthest from the truth," "If retaliation were the law of gentlemen," &c., are not tolerated. To speak of the law of gentlemen, with a good grace, one must not, like the assassin, strike his adversary in the dark, or hide himself behind an (alias), thus violating their very first principle.

To return to the subject, my reply to his query, why I attempt, at this late day, to insinuate that his, (Dr. Dubbs,) ordering a pair of forceps with the barrel and screw unfinished, begins to look like making an improvement, is, that what was then, an inference, drawn from various circumstances, I can now safely assert, for a fact, and give the following to attest it:

PATENT OFFICE, March 29th, 1850.

SIR—I have to state, in reply to your letter of the 27th inst., that information touching caveats, is never given to third persons. Your \$2,50 is, therefore, returned.

Yours respectfully,

THOS. EWBANKS, Commissioner.

To John D. Chevalier, Esq.,
184 Broadway, N. Y.

P. S. *The name stamped on Mr. Dubbs' Model is J. D. Chevalier.*

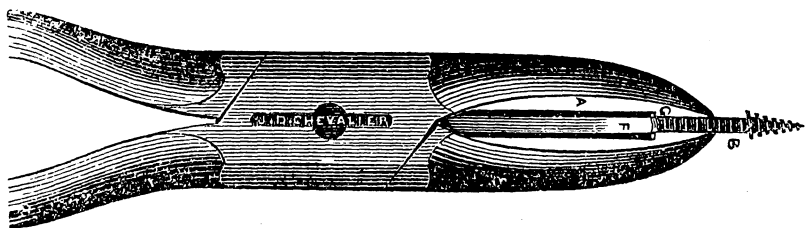
Whether the above makes my former assertions proofs on this point, I leave your readers to judge. The model in the patent office is, undoubtedly, the one that I sent to Dr. Dubbs, and on which he made his improvement in 1848; if it is not, the mighty piece of mechanism, on which so much genius was employed so many years, in perfecting,

cannot already have been consigned to the tomb of the Capulets, and should be shown up.

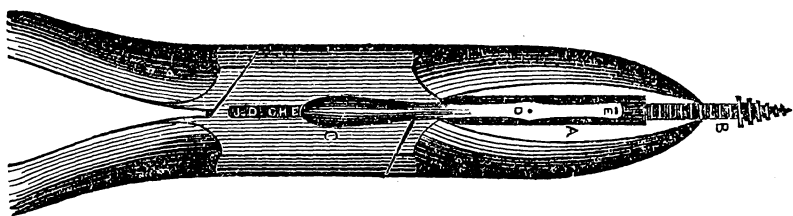
The assertion of a Mississippian, that the use that Dr. Dubbs makes of the screw forceps is to extract the roots of incisor and canine teeth, and those of the molar teeth, with the two pair of right and left forceps, furnishes the very best argument in support (and not against) the allegations in my former communication, that Dr. Dubbs had not then his "most beautiful piece of mechanism, with which to extract teeth from ladies and gentlemen, without pain." Nor anything else that he deemed suitable for that purpose,—hence his experiments on the screw forceps, that I sent him, trying the long since discarded spiral spring to push the screw out of the barrel; finding it of much advantage, as he acknowledged, thereby proving that he had used it in preference to the *inimitable* one on which he had spent so much time.

That a Mississippian may cease to wonder why he found no notice of *my* improvement of my screw forceps, in the catalogues of 1847–8, he should know that improvements of such *magnitude* are of daily occurrence here, where they are estimated at their true value, and that the man who puts an additional peg to a shoe, does not hurry off to Washington to secure a patent.

CHEVALIER'S—Fig. 1.



DR. DUB'S—Fig. 2.



DESCRIPTION OF CUTS.

- A. A barrel common to both instruments, containing a rod, which has a screw B. at its upper extremity, and a rack on one side of said rod, working freely in the barrel. In figure 1 the rod and screw is kept

in its proper position, by means of a spring F, which passes up over the barrel, as at G, having an aperture at the top, through which the rod passes. The aperture is bevelled in the interior, forming a pall, which catches into the rack, by pressing the thumb upon a button on the opposite side, the screw is relieved, and can be drawn out.

Figure 2. The same means is obtained by a trigger, having its Fulcrum at D, and a pall at its upper extremity, which catches into the rack, passing through an aperture in the barrel, which is kept in that position by a spring underneath, near its Fulcrum. The screw is relieved, in order to be drawn out, by pressing the finger at the end of the trigger at C.

It will readily be perceived, by the above cut, that when the screw of No. 2 is screwed firmly into the roots of either of the canine teeth, and the trigger happens to be turned towards the cheek, there is danger of its catching the lower lip, and if another half turn is given, to reverse it, it will inevitably split the root.

One word on his closing paragraph. I am not curious enough to wish to know what materials he may have in hand to make up his batch of suspicions that instrument makers often make improvements on the suggestions of others; there is nothing very horrible in that; but I do know that there is more honor in the man that makes improvements on the suggestions of others, than in the one who appropriates both the suggestion and the improvement for his own profit.

To conclude. I embrace the present occasion to assure Dr. Dubbs, that I have no desire to continue, or to have the last word in this controversy, nor would I have noticed the anonymous communications that have appeared on the subject, the material for which was evidently furnished by him, had I not given him credit for a high sense of honor, and an earnest desire to establish his right of priority of invention, to the satisfaction of his professional brethren, by fair argument. I submit, for the present, the whole question to the judgment of an enlightened profession, and will cheerfully submit to their verdict.

JOHN. D. CHEVALIER.

New York, May, 3d, 1850.

PRIZES AWARDED BY THE INSTITUTE OF FRANCE.

The Academy of Science of the Institute has awarded a prize of twenty-five hundred francs to Dr. C. T. Jackson, and one of the same amount to Dr. Morton, for the discovery and application of anaesthetic effects of Ether. We shall publish the report of the committee in our next.

TREATMENT OF THE DENTAL PULP PREPARATORY

TO PLUGGING—*Continued.*

BY J. D. WHITE, M. D., DENTIST.

STIMULANTS.—“Under favorable circumstances, the sensibility of the membrane may be removed, or its absorption produced so as to render it capable of receiving the stopping without pain or any subsequent inconvenience. Judging from my own observation, the continual application of a moderate stimulus, such as *alcohol spirits camphor*, a solution of the nitrate of silver &c., will be found a more safe, as well as efficacious mode of treatment, than any attempt at destroying the membrane.”

He further adds: “It is not perhaps easily determined, nor is it of much importance, in what way these applications produce effect; whether by occasioning the actual absorption of that part of the membrane to which they are applied or by gradually wearing out as it were, its sensibility; it is sufficient that experience proves them to be efficacious.” I think this is a subject on which it is of great importance to know upon what principle a remedy acts. If these applications only wear out the sensibility of the part in which they are in contact, they will often fail upon the same principle as the astringents do; but if they cause the absorption of the whole pulp, they succeed, upon the same principle as that of the cautery properly applied. Exposure to the air and fluids of the mouth for a time, will often produce the same result, namely, “wearing out the sensibility,” and absorption of the pulp, or sloughing, without any subsequent inconvenience for a very long period. To prevent the evils which arise from the accumulation of fluids in the pulp cavity, when the functions of the pulp have only been *suspended* for a time by astringents, &c., and the external cavity plugged, some have introduced the practice of penetrating the neck of the tooth with a small drill, where the margin of the gum overlaps the enamel, so that the fluids may have free exit. It is needless to say that this proves the uselessness of the first part of the treatment. Before I discovered that I could destroy the pulp without necessarily rendering the tooth an useless foreign body, and becoming itself a source of irrecoverable irritation, it was my practice to insert a small gold tube in some part of the stopping, believing it to be preferable to substituting one aperture for another. But this is never required if the pulp be properly treated; and where alveolar abscess exists, so as to be a serious annoyance to the patient, or injure the parts generally, the tooth should be extracted.

The tubed or drilled tooth is often only of temporary relief, and more frequently go on to abscess than if it be plugged entirely, I would ask how is it that most teeth and roots that have never been plugged, form abscess. When there is every opportunity for the escape of internal fluids? In my humble opinion, and it is in fact, my daily experience, that the

best plan the operator can adopt to destroy a tooth, is to drill to the nerve cavity, after it has been plugged over the pulp.

THE CONCENTRATED ACIDS.—These substances have been highly extolled by some, and deprecated by others. *Arsenious acid* is most commonly employed, and there exists great difference of opinion among dentists in regard to the manner in which it should be used ; but I have as yet seen nothing satisfactory as far as principle is concerned, as to the best mode of administering it. J. J. Greenwood, of New York, employs it thus : “ Steep a lock of cotton in essence of peppermint, laudanum or alcohol ; then dip a point of the lock in powdered arsenious acid, and apply it in close contact with the pulp.”

Dr. Ide, of Ohio, in a communication to the American Journal of Dental Science, gives the following formula, which he has used with great success :

R.—Arsenious Acid, gr. iij.
Acetate Morphia, gr. ij.
Misce.

Applied to the pulp on a lock of cotton.

Dr. S. Brown, of New York, in the American Journal of Dental Science, says : “ The arsenic should be applied on the extremity of a lock of cotton, steeped in cresote, instead of water. The effect of the cresote is to allay the pain which the arsenic alone would produce when acting on the living nerve.” This method of using arsenic is practised by many dentists with whom I am acquainted, and with great success, and less pain to the patient, than is occasioned by it when used alone ; but I think the reason assigned by Dr. Brown why it gives less pain when thus combined, is incorrect, and for the following reasons : 1st. The therapist teaches that arsenic destroys the vitality of living tissue, by combining chemically with its constituents. 2dly. The chemist teaches that arsenic is largely dissolved in the essential oils, and sparingly dissolved in water. 3dly. The therapist teaches that if arsenic is not applied to a part in sufficient quantity to destroy vitality speedily, it will be absorbed ; and, 4thly. That if it is in a condition to enter into combination rapidly, and in sufficient quantity to produce a speedy slough, it is not absorbed. Now, cresote dissolves the arsenious acid more freely, perhaps, than any other essential oil ; it is, therefore, in a favorable condition to unite speedily and in large quantity with the pulp, and in proportion to the rapidity with which it unites, and destroys vitality, will the pain be diminished. Taking this view of the subject, arsenious acid is, perhaps, the best agent that can be employed for destroying the pulp of a tooth, if it be properly combined with other substances, because it can be applied, in all cases, with equal facility to the back teeth as well as the front.

A recent writer of this city, (Dr. Goddard,) asserts that “ The best plan is to clean out the cavity slightly, and apply to the pulp, as closely as possible, a very small quantity of pure *arsenious acid*. I say pure, because the common arsenic of the shops will not answer ; and again, because many dentists are in the habit of mixing it with sulphate of morphia, to diminish pain, than which there cannot be a greater mis-

take ; for the latter article both impedes the escharotic action of the arsenious acid, and increases the pain. The arsenic thus applied, not only destroys the vitality of the pulp, but it combines with the animal matter of the pulp, and forms a compound incapable of putrefaction. (!!!) It causes some pain for three or four hours, when it ceases, and in a day or two the tooth may be plugged." I have tried the above method of using arsenious acid, and sometimes fail to destroy the pulp by one application, but *never* fail to cause great pain. It is well known to dentists, that arsenious acid, when applied alone, will not always destroy the vitality of the nerve, but will give intense pain, and produce acute inflammation, requiring the immediate removal of the tooth ; and for the very reason that the arsenic is taken up by the absorbents, and excites inflammation of the whole pulp, without entirely destroying its vitality ; and very frequently it is absorbed to such an extent as to produce intense inflammation of the alveolo-dental membranes and alveolar processes. Arsenious acid, applied in *any* form, pure or impure, if it cannot combine in sufficient quantity to produce a speedy slough of the part to which it is applied, will be absorbed, and do great harm, (and this is the reason why its use has been deprecated by the best dentists in the country,) and because it will not always destroy the nerve, but cause intense pain. That pure arsenious acid "combines with the animal matter of the pulp, and forms a compound incapable of putrefaction," will not make it less objectionable than if the pulp be destroyed by any other substance ; it will act as a foreign body in the internal cavity, and be a cause of continuing inflammation through the foramen at the end of the root of the tooth, and involve the external membranes. It may combine with any indefinite portion of the pulp ; and if we produce the death of a part, it is indispensable to remove such portion, or it will itself become a cause of inflammation. It is found, by experience, to be so in the treatment of local diseases of other parts of the body, and I think the same facts will apply in the treatment of the pulps of the teeth, no matter what may be the nature of the compound of the dead tissue.

DR. C. A. HARRIS' ADDRESS.

If good advice will make good dentists, and good men, then, we are sure, that the students of the Baltimore College must be an ornament to their profession, and to society. The address of Dr. Harris—a copy of which he has kindly sent us—was delivered to the class at the close of his last regular course of lectures, and abounds in good and useful advice, delivered in that kind and persuasive manner, which never fails to tell upon the hearts of the young, and to inspire them to strive for eminence and usefulness through life. This address may be read with pleasure and profit by the old, as well as the young ; by all, who cherish a love for the honor and usefulness of their profession.—ED. RECORDER.

NEW YORK DENTAL RECORDER.

M A Y , 1 8 5 0 .

MR. LEVETT'S ENAMEL.

To the Editor of the Dental Recorder:

DEAR SIR—In the "Dental News Letter" for April, you will, perhaps, have noticed a communication, signed by myself, and addressed to you, in reply to an anonymous article, which appeared in your Magazine. In justice to yourself, and all concerned, I deem it necessary to explain to you why a communication, *addressed to you*, should have appeared on the pages of the Dental News Letter, when, in reality, it was intended for your valuable Magazine.

The article which called forth the reply from me, was one which, if allowed to pass uncontradicted, was likely to be highly injurious, not only to myself, but to the interests of those of my professional brethren and patrons throughout the country, who have purchased of me the patent rights for particular States and localities. To these *I owed protection*, and *prompt, quick* refutation of attacks upon their rights. Every moment's delay was injurious, and, as I believed that the publication of my reply, through the Dental News Letter, would reach them and the world sooner, (believing it to be published in advance of your own Magazine,) I sent my communication there, still trusting that *you would also publish it*, as the original attack had appeared in your pages, and as the principle of "*hearing both sides*" is generally admitted as one of the first of editorial fairness and justice.

You will, therefore, oblige me by giving *that communication* a place in your next issue, as I trust that I have given you sufficient reasons for not having sent it to you at first.

Yours, very respectfully,

M. LEVETT.

628 Broadway, May 4th, 1850.

REMARKS UPON THE ABOVE.

Our pages are always open to any one who feels that he has been agrieved by either editorial remarks or communications. This, we supposed, every reader of the Recorder fully understood, and we were surprised, therefore, to see in the News Letter an article from Mr. Levett, addressed to us, in reply to a communication in the Recorder.

Before receiving the above explanation from Mr. Levett, we supposed that his article was sent to the News Letter under the impression that we should refuse to publish it; but this is not the case; we shall publish it in our next, and are only precluded from doing so now by the press of other matter.

We have never denied the *right* of any dentist to patent any invention or improvement of his own if he chooses to do so, but as we profess to edit a dental magazine for the benefit of the 'profession, and as we believe the practice of securing patents or keeping secret dental improvements highly illiberal and unprofessional, we deem it our privilege and duty to expose such secrets as often as we can and to oppose all claims which are not founded on original inventions and secured by a boni fide patent right.

The specification of Levett and Henry's patent, published in the August No. of the Recorder for 1848, secured to them a patent for a varnish or japan, to be used as a covering for gold plates, not one word is said in it about an enamel, and we cannot see how *that patent* can be made to protect them in the exclusive use of *all enamels* for this purpose, nor can we see how they, or either of them, could obtain another patent for doing that which had so often been done by others. If Mr. Levett has obtained a patent for the enamel which he vends, it is undoubtedly good to secure him against any infringement upon the use of *that enamel*, but as the recipe in the Recorder was not published as his, and as he denies in the News Letter that it is his, or that it in the least resembles his, we cannot see that we have in the least injured Mr. Levett by publishing our correspondent's letter.

If the enamel published by us is good for nothing, as Mr. Levett intimates, it certainly cannot injure him; and if we should ever have it in our power to publish a recipe for one much better than his, and should do so, it would not be for the purpose of injuring Mr. Levett, nor any of those who have purchased the right to use his, but for the benefit of the whole profession, for whom we labor.

COMMITTEE ON AMALGAM.

At the last regular meeting of the Society of Dental Surgeons a Committee was appointed to make examinations into the different materials used for Amalgams, and the methods of combining them, that, if possible, the best may be ascertained for filling teeth. The Committee consists

of Messrs. Clark, Johnson and Bridges, to which the President, J. Lovejoy, and the Secretary, C. C. Allen, were added.

The subject of filling teeth with amalgams has occupied the attention of Dentists for a long time, and there is perhaps none respecting which there has been, and is now, a greater diversity of opinion, for while some denounce it as "unfit and dangerous" and consider that the ill effects of it are so obvious that no man can be professionally honest and use it, others believe it to be the greatest discovery in dental surgery that has been made since gold was introduced for filling teeth.

We hope that the committee to whom this subject has been referred, will take time to examine it thoroughly and expose the abuses of this practice, as it has heretofore been carried on, as well as the advantages of using amalgam for filling teeth, and in what cases it may be used. The Committee would be thankful to any practising dentist or physician who can furnish any facts to aid them in their examination of this subject, as their only object is to arrive at correct conclusions and advance nothing which has not been established by experience and will not be sustained by good practitioners in future.

TIN FILLINGS.

We recently saw a tin filling, on the anterior surface of a superior molar, adjoining the space made by the extraction of the posterior bicuspid, which was put in by a dentist in Washington in 1822, very near twenty-eight years since. We are persuaded there can be no mistake about it, for the gentleman who now has it in his mouth, is an ex-judge of one of the highest courts in our State, whose veracity or memory cannot be doubted, and he now fixes the date by the circumstance of his being in Washington at that time, and from his having closely watched that filling, the only one in his mouth, ever since.

While relating the above fact to Dr. D. C. Ambler a few days since, he opened his mouth, and showed us another tin filling, which he assured us was put in his tooth, the anterior inferior molar, on the labial side, by Dr. David Rosseter, in 1826. Both these fillings were in a good state of preservation. The former was much the larger, and was slightly corroded by oxidization, while the latter was quite small, and retained a bright metallic surface, nearly level with the face of the enamel. In some mouths, probably, these fillings would, ere this, have been corroded away; but, as they have lasted almost thirty years, and bid fair, from present appearances, to last as much longer, if required, they

settle the question of the durability of tin fillings, and the propriety of using them when our patients are unable to pay for a more expensive material.

BALTIMORE COLLEGE OF DENTAL SURGEONS.

A large audience of ladies and gentlemen assembled in the Hall of this institution on the 28th of March, to witness the ceremony of conferring the degree of Doctor of Dental Surgery upon the following gentlemen, graduates of the class of 1850 :

Levi S. Burridge, New York ; Orlando H. Wilcox, Maryland ; C. G. Davis, New Hampshire ; J. Dixon Smith, M. D., Georgia ; S. H. Dumont, Belgium ; F. D. Thurmond, Virginia ; Dr. L. Stocking, Louisiana ; H. B. Young, Ohio ; Robert Johnson, Virginia.

After the conferring of degrees, Dr. E. Townsend, of Philadelphia, briefly addressed the graduates in a very happy and feeling manner, giving them much salutary advice upon subjects connected with their profession. The Valedictory Address was then delivered by Dr. S. P. Hulihen, of Wheeling, Va. Dr. H.'s address is spoken of in the highest terms by those who had the good fortune to be present. He spoke particularly of the importance of a high standard of dental education as necessary to ensure any great degree of success in practice.

After the Provost had bidden the graduates an affectionate farewell, the faculty, students, and invited guests partook of the more substantial entertainment, which was provided for them in the upper rooms of the College building.

DENTAL WAREHOUSE.

Our readers will be pleased to learn that their old friend, Dr. Solyman Brown, has returned to the city and opened a warehouse for the exclusive sale, in New York, of Stockton's Mineral Teeth, where he will be most happy to see and accommodate his numerous friends and acquaintances. See his advertisement on the third page of our advertising sheet. See also a new advertisement on the eighth page.

TO OUR SUBSCRIBERS.

Our present number has been unavoidably delayed much longer than usual by the removal of the printing office—a circumstance which seems to have become inseparable, from the first day of May, with a large portion of the good people of Gotham. We shall endeavor to be more prompt in future.

NEW YORK DENTAL RECORDER.

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SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.

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Translated by Thomas W. Evans, D. D. S., for the "Recorder."

REPORT OF THE COMMITTEE OF THE INSTITUTE OF FRANCE ON ETHERIZATION.

THE following report of the Committee upon the prizes of Medicine and Surgery for 1847 and 1848, was read at a public meeting of the Academy of Sciences of the Institute of France, held at Paris the 4th of March, 1850. It will be interesting to American Readers, from the fact that it decides, so far as the judgment of the Academy is concerned, the question as to the rival claims of Messrs. Jackson and Morton to the discovery of the virtues of Ether as an anesthetic agent in surgical and medical practice.

One of the labors presented to the Academy (says Mr. Knox in his report) takes precedence of all others, and to this we first call the attention of the Academy. It is not a labor extended and complicated, which has required long application, severe study and repeated efforts of the mind: it is simply a fact of high importance brought to light, a thought fruitful in results and applications. This fact and this thought have together the character of a veritable discovery, which has seized and lively impressed all minds, and which, starting up in the New World, has soon found an echo everywhere. It is something in which all humanity is interested. Already thousands have experienced its benefits, and it will profit future generations; for it is the destiny of man to be exposed to maladies of all kinds which have pain for their inevitable concomitant; it is natural to dread suffering, to shudder at the thought that it is soon to assail us, especially when obliged to submit to it voluntarily, and to desire to avoid painful sensations with as much or even more earnestness than we seek pleasure.

It is a signal service rendered to science and to humanity to have made known a means, if not infallible at least successful in most cases, of rendering man insensible to pain, to destroy for a shorter or longer period, once or several times in succession, the consciousness of external impressions, the feeling of one's self, doubtless by coming in contact with the principle of life, but without producing anything more than a transi-

ent and momentary disturbance, after which all the functions resume their natural order. If *some* few instances of the unhappy issue of anesthesia thus artificially produced have had to be recorded, it has resulted sometimes from defective processes, sometimes from the want of skill and foresight of the operator, or of an unfortunate idiosyncratic peculiarity on the part of the victim, one of those constitutional anomalies which predispose to events the most unexpected and improbable according to the known laws of men and animals. And we hasten to add, that well attested cases, too deplorable it is true, of the fatal effects of anesthetic agents applied to man, have to the present time been inconsiderably small, when the prodigious number of the experiments is taken into consideration. There is no exaggeration in saying that, within little more than three years only, since the use of ether or chloroform has been introduced into the practice of medicine as an anesthetic agent one hundred thousand persons at least, in America first, and by American surgeons who have had the honor of introducing it, and then in different parts of the Globe, have submitted to its influence; and of this number there have been no more than twelve or fifteen accidents to be deplored, from the circumstances in which they are placed several members of your commission, two particularly, have paid a large tribute to science in so far as the employment of anesthetic means is concerned. Their experience alone is already of some importance.

Since the close of 1846, (from this period date the first facts observed and recorded at Boston, in America, by Messrs. Jackson & Morton, and which were soon known in France :) from this time, I say, Mr. Velpeau and myself, each for himself have been obliged to practice first etherization properly speaking, then the use of chloroform, five or six hundred times at least: a thousand or twelve hundred individuals, perhaps more, have been treated by our hands or under our eyes, in order to undergo surgical operations more or less grave; and we have neither of us, yet seen a single case of instantaneous death produced by anesthesia—we have neither of us yet ever been pained by the spectacle of such an event.

With ether or chloroform surgery has lost much of its former cruelty; it has no longer to contend with the excessive timidity of some persons. What a fine subject does anesthesia, considered in itself and in reference to its application, whether as a therapeutic means or as a preservative against pain in surgical operations, present for study, for classical experiment and observation? How many doubts are yet to be dissipated? How many important questions connected with it are yet to be solved?

But the discovery itself has received the sanction of time and experience ; after more than three years since it has appeared in science, and the world has profitted by its benefits, the Academy ought not to delay any longer to give it its high approbation ; she ought to proclaim and honor it as one of the most beautiful scientific facts of our age, which certainly is included in the category of those which have been anticipated by the generous philanthropy of Mr. de Moutgnon.

The names of two men inhabiting the same city, Boston, are connected but by different titles, with this important fact of anæsthesia by inhaling the vapors of ether, and its application to medical and surgical practice. One is Mr. Jackson, Professor of Chemistry ; the other Mr. Morton, Surgeon Dentist. As happens too often in such cases, a question of priority is raised between them. Nevertheless the committee has been obliged to decide upon the facts and events which have transpired far from us.

All the documents have passed under its eyes ; it has made a most attentive and conscientious examination of them ; and this examination has resulted in the conviction, that there are in the discovery of etherization, two things which have occurred distinctly and successively, one belonging to Mr. Jackson, the other to Mr. Morton. Mr. Jackson had observed that several persons, after being exposed a certain time to the action of the vapors of ether were momentarily deprived of all sensibility. This is the physiological fact, Mr. Jackson himself verified it.

Afterwards, Mr. Morton succeeded several times in extracting a tooth without pain to persons who had previously inhaled the vapor of ether ; moreover he induced several surgeons of the large hospitals in Boston to make use of the same expedient in more important operations. This was anæsthesia applied, reduced to practice ; the discovery thus received its compliment. Mr. Jackson and Mr. Morton were necessary to each other, without the examples, the application and courage, not to say the presumption of the latter, the observation made by Mr. Jackson would have remained a long time unapplied ; and without the fact observed by Mr. Jackson, the thought of Mr. Morton would perhaps have been sterile and without effect.

After mature reflexion then, the committee have thought there were two distinct parts to this brilliant discovery of etherization, and that to each of the two separately a prize should be accorded.

Consequently it is proposed to the Academy to award one prize of 2,500 francs to Mr. Jackson for his observation and experiments upon the anæsthetic effects produced by the inhalation of ether ; another of

2,500 francs also to Mr. Morton, for having introduced this method into surgical practice after the indications of Mr. Jackson.

Paris, April 18th, 1850.

FORCEPS FOR BENDING CLASPS.

Brooklyn, June 1st, 1850.

DEAR SIR.—In returning you the instrument you were polite enough to lend me to base my experimental improvements upon ; permit me to state that I have succeeded in accomplishing the object in view, namely ; the hollowing of the inside of clasps for bicusped teeth so as to fit the globular swell of such teeth on their internal surface, and thereby prevent the slipping up or down of such clasps, as they often do, to the injury of the gums at the neck of the teeth ; as well as the collection of food and the unpleasant feeling, of such projecting clasp, to the tongue. I feel pleasure in stating to the profession, through your paper, the success I have met with, exceeding indeed my expectations, for I find that I not only accomplish the object sought, but have obtained an instrument which also takes the place of the old bending pliers in making such clasps, besides giving a surface upon which the part of the clasp which passes between the teeth may be hammered into any shape desired without removing it from the instrument ; a great convenience to those, who, like myself, prefer fitting clasps to the natural teeth, instead of to the plaster cast, (a most imperfect method in my opinion,) and taking the wax impression with such clasps upon the teeth in their proper position.

I must also state the perfection with which Mr. J. D. Chevalier copied the patterns I made for him, and the excellence of the forceps he made me, fac similies of which may be seen in his store in Broadway.

Yours, &c.,

R. G. HOLMES.

The forceps alluded to above were the first made for this purpose, so far as we have been able to learn. We have used them now more than a year, and although without doubt improved upon by Dr. Holmes and Mr. Chevalier, yet, in their imperfect condition, we have found them very serviceable in fitting clasps to the convexity of molars and bicuspid. They consist of nothing more than a stout pair of ordinary forceps with short jaws and long handles, so as to give great power, and having on one jaw a convex projection which fits, when the forceps are closed, into a corresponding hollow in the other jaw.

When the clasp is bent so as to pass around the tooth, by pinching

any part of it with these forceps it may be bent crossways also, and is thus made to fit the convexity of any part of the tooth. Some teeth are so very short and in other respects so difficult to adjust a clasp to that, unless the fit is made very perfect, the clasp will not hold on with sufficient firmness to support the plate in its proper position. In these cases the above forceps are invaluable.—*Ed. Recorder.*

From the American Journal.

ADJUSTMENT OF CLASPS.

MESSRS. EDITORS:—In my last communication, I presented some objections to the use of clasps: I now offer to your readers a plan for their accurate adjustment, where their use is deemed advisable. As, when presenting those objections, I did not wholly condemn their employment; so now, in offering this plan, I do not advocate, in every case, their adoption.

It is unjust to base the rejection of any practice upon the evils attending its abuse. Thousands of teeth are daily injured by the file in the hands of ignorant pretenders; and gold fillings—so called—drop out by scores, leaving the teeth in worse condition than before. Yet the file is invaluable, and gold foil the only good means for the arrest of dental decay. If a filed surface, after the most careful finish given to it on the part of the operator, and the most scrupulous cleanliness on the part of the patient, shows greater tendency to decay than other surfaces of the teeth in the same mouth, there lies a valid objection to the use of this tool—not otherwise. If the decomposed bone be completely removed, the cavity properly shaped, the gold well introduced and condensed, and its surface rightly finished, dental art has done all that can be done to stay the progress of caries at that point. The gold is not at fault because the operator is unskilful in its use; nor the file objectionable because some handle it as if it were a hore-rasp.

My objections to clasps hold good, however accurately they may be adapted. The evil is aggravated by mal-practice, but no degree of skill can altogether remove it. Clasps which are badly fitted give more ready lodgement to decaying agents, but no accuracy of adaptation can exclude them entirely. Clasps may, by bad adjustment, bring an unnecessary strain upon the tooth; but in some cases—as where the entire weight of a heavy piece is in front of the clasped teeth—this strain is unavoidable; and in all cases there is some degree of traction, else

how could the clasp aid in the retention of the piece. The simple contact of metal, when brought into close and constant contact with the tooth, near its neck, is, to a greater or less extent, irritating. For this reason I never allow the plate to approach within less than half a line of the tooth; for this reason I place the clasps as far from the gum as is consistent with a firm and secure hold; and when forced, from the peculiar shape of the tooth, to encircle its neck, I feel that I have imparted to my work an element of ultimate failure.

I admit, with Dr. C. T. Cushman, that clasps are, with our present knowledge, indispensable; doubt, with him, whether they can ever be wholly dispensed with; and agree that their perfect adaptation modifies my objections; but I cannot think that these objections 'vanish' before even a 'perfect' adjustment. They were made, assuming the work to be done in the best possible manner, and they were based upon the action of physiological laws, which no mechanical ingenuity can subvert.

But though compelled in this opinion to differ from Dr. Cushman, I cannot omit expressing the pleasure which his article gave. So few act out the principle that 'what is worth doing at all is worth doing well;' so many seek the plan which shall give least trouble, instead of searching out that which shall best accomplish the given end; so many follow a routine, without thought of improving a confessedly imperfect practice—that it gives pleasure to meet one who, in the attainment of a desired object, counts not the cost of a little additional trouble.

To those who, in a complicated piece of dental work, ask only three visits from the patient, lest that patient should weary with frequent coming; to those who, knowing a better plan, adjust clasps by the plaster cast alone, because it is more expeditious and less troublesome—to such, the 'temporary fastenings' of Dr. Fogle, and the method which is here offered, will seem uselessly tedious. Not so, however, to the sincere inquirer after correct and accurate practice. It is to such that Dr. Cushman's article appeals, and to such that these remarks are directed. We confidently assert that there is no one element more essential to successful practice in mechanical dentistry than scrupulous exactness.

To say of clasps, as very commonly applied, that they are 'adapted,' is a perversion of language. It is customary with many to trust to the plaster cast without trying the piece in the mouth previous to soldering. An accurate adjustment is, under such practice, impossible. Others finish the adjustment in the mouth, adopting various measures to insure success. The method of Dr. Fogle secures, perhaps, greater accuracy than any other, with one exception,

Dr. Cushman has offered us a plan which he considers so valuable that he does not venture, in the simplest cases, to use any other. We beg to return the favor, and present to Dr. Cushman a plan which we regard so highly, that under no possible circumstances would we dispense with its use. The profession is indebted to Mr. Lester Noble, of Longmeadow, Mass., for this valuable suggestion.

Mr. Noble's Method.

The first step is—after the plate has been accurately fitted and filed away to the distance of at least half a line from the neck of every tooth—to fit the clasps to the teeth. It is foreign to our present purpose to speak of the variations in length, width and thickness which particular cases demand. Suffice it to say, that the clasp should fit closely every part of the tooth which it touches; must take a firm hold, even should it be necessary for this end to carry it close to the gum; must have proper width and thickness to give strength, and be sufficiently alloyed to give the requisite elasticity.

The original wax impression taken for the plate, is never relied upon for the model of the tooth to be clasped, because in the great majority of cases, the wax is dragged at the very point where accuracy is required. A separate impression in wax is therefore to be taken of each tooth to be clasped. This may in a few moments be done after the larger impression is taken, and consequently does not require a separate visit from the patient. The wax should be protected from the lateral compression of the fingers by a narrow circle of brass or silver, about one-half or three-fourths of an inch in diameter; these may be variously shaped to suit different positions. It is evident that any tooth, however irregularly placed, may be thus separately taken with the utmost accuracy.

This impression is filled, as usual, with plaster, and when preparing the larger metallic casts—always done in sand—a zinc duplicate of this tooth is readily procured. The advantage of the metallic tooth is, that the clasp can be fitted around it without danger of altering its shape, as happens with the plaster from frequent trial of the gold band. It also allows the use of other tools than the pliers in the shaping of difficult clasps. Mr. Cushman's plan of taking a pattern in sheet lead, by which to cut out the gold, is always observed. When the clasp is thus accurately fitted over the metallic tooth, in just such position upon that tooth as it is designed to hold in the mouth, it may then be tried upon the plaster tooth, and if it fit there it is ready to be tried upon the natu-

ral tooth. With proper care it can be made to fit every part of the tooth which it touches so closely as to exclude everything except the fluids of the mouth.

You are now prepared, at this, your patient's second visit—after assuring yourself, first of the adaptation of the plate, and then of each clasp severally—to obtain the relative position of the parts, *in situ*. Here lies the peculiar excellence of Mr. Noble's method. Wax, so commonly used, is, from its soft and pliant nature, very liable to alter its shape upon withdrawal. So apt is this to happen, that perfect accuracy by this method is to be regarded as an exception and an accident. Unfortunately the wax gives by its appearance no evidence of this change, and we learn it when correction is too late. Mr. Fogle's temporary fastenings are designed to obviate this difficulty—how perfectly, we are unable, from want of experience, to say. Mr. Noble completely obviates it by the use of plaster.

Let the clasp bind upon the tooth only with sufficient firmness to keep it in its proper place. Then mix a small quantity of plaster from a lot which, by previous trial, you find requires from six to ten minutes to set; put it upon a piece of paper or sheet lead about an inch square, and just before it begins to harden, introduce it into the mouth upon the forefinger, pressing it into gentle contact with a portion of the plate and about one-half of the clasp. It must be held there for from three to six minutes, until it is sufficiently hard to break with a sharp fracture; this point you can determine by examining the plaster left in your bowl. The plaster must then be withdrawn. Sometimes plate, clasp and plaster will be brought away together; or the plaster and clasp together, leaving the plate; or the plaster will separate, leaving both clasp and plate in the mouth. Should the plaster by any accident break, it can readily be united at the point of the fracture, without in the least altering its shape—one great advantage over wax. If the plaster adheres to the plate on withdrawal from the mouth, it must then be carefully detached, the plate replaced, and the process repeated for the second clasp.

Several precautions are necessary. If the clasp bind too tightly around the tooth, its ends will, when removed, spring together, and thus it will not exactly fill the original impression made in the plaster. If the part of the clasp which you design to cover with plaster be so regular in shape as to make its adjustment, when out of the mouth, uncertain, mark it with a file or by a small point of solder; this will be copied in

the plaster and remove all doubt as to its definite position. If the plaster be extended over some part of the edge of the plate, it will, in the absence of any marked irregularities of surface, give a better guide for its re-adaption. Lastly, if the plaster cover too much of the clasped tooth, it will be more liable to break on being withdrawn.

Take now the clasps, place them each in their separate impressions in the pieces of plaster, secure them if necessary with a small piece of softened wax. Place one end of your plate in its corresponding bed in one of the plaster pieces. If proper care has been used, both clasp and plate will fit into the plaster with unerring accuracy, and of course hold the precise relation as when in the mouth. While in this position, cover the clasp and part of the plate on its upper surface with fresh plaster—or plaster and sand—and when this has hardened, remove the first plaster—just as in other cases you would remove the wax—preparatory to soldering.

I never unite the clasp to the plate to the extent of more than two, or at most three lines, and I place the point of attachment as near to the centre of the clasp as possible. It is thus more yielding and elastic than when bound by solder to its very extremity, and the parts on either side of the point of attachment grasp the tooth with equal pressure. The strength of the union is, under this plan, gained more by the thickness than the width of the solder: this thickness is secured with greater certainty by laying a prism-shaped piece of metal at the point of union, and upon this placing the solder. The extent to which you wish the solder to flow over the plate, may be very exactly defined by the use of whiting. But these remarks apply to any mode of attaching clasps: we shall, therefore, not extend them, as our present purpose is simply to call attention—first to the importance of taking a separate impression of the tooth to be clasped; secondly to the substitution of plaster for wax in copying the relative position of clasp and plate.

We present the above plan of Mr. Noble to the careful, pains-taking, and conscientious dentist, convinced that if he will once give it an honest trial, he will adopt it as his invariable practice. It requires patience and delicate manipulation, but so does all dental work, and he who either cannot or will not comply with this requisition, is unqualified for the proper discharge of his professional duties.

P. H. AUSTEN.

38 N. Charles-st., Baltimore.

From the Boston Medical and Surgical Journal.

PRESERVATION OF DEFECTIVE TEETH.

Dr. Harwood, a dental operator of celebrity in Boston, is practising a method in regard to the management of diseased, sensitive, aching teeth, which promises to revolutionize the whole modern art and mystery of operative dentistry, while the benefit likely to accrue to those so unfortunate as to suffer from diseased teeth is of incalculable importance. The idea was first suggested by his partner, Dr. Parker. The old practice consisted, in regard to a carious tooth, too sensitive to bear gold filling at once, in destroying the vitality of the nerve by the application of arsenic, nitro-muriatic acid, or even the actual cautery by introducing into the cavity a red-hot wire. When that had been accomplished, pressure could be borne and the hollow completely occupied with gold. In that case, however, the tooth became, by the laws of chemistry, a foreign substance. It had no longer any vitalized connection with the living system, and consequently soon became partially if not wholly discarded, and gradually rose from the socket—nature never relaxing her efforts to throw off the dead material. To save the tooth, without severing its connection with the jaw, by the destruction of the nerve, was the ambition of Dr. Harwood. Those familiar with the anatomy of the region will appreciate the ingenuity and success of his plan. With a simply-constructed instrument, the shape and use of which are no secret, the nerve is severed. Instantly the patient is relieved from the acute and distracting pain sometimes characteristic of some kinds of pulp-exposed teeth. Having carefully removed every speck and point of decayed bone, the tooth is then plugged artistically, without the least disturbance to the patient. In the meanwhile a conservative principle is at work. The diseased upper and exposed surface of the nerve is divided from the healthy mass below; but little or no inflammation follows, the air being excluded, as in subcutaneous division of the tendons, and the wound speedily heals. Nourished, as it always had been, by the arteries at the roots, and the body of the tooth retaining all its original vital endowments, no discoloration ensues, and a tooth subjected to this truly philosophical treatment, may perhaps remain the most enduring and useful of any in the jaw through life.

We consider this a triumphant achievement of American dental science, deserving the marked consideration of dental surgeons, and the most extended publicity of the press.

“A NEW MODE OF PRESERVING DECAYED TEETH.”—*To the Edi-*

tor, &c., Sir,—In an editorial notice of the above stated discovery, or operation, in your last number, you attempted a description of it; but the matter seems still to be left in obscurity, unless viewed in the light of a discarded operation long since practised by our predecessors in the profession, which we presume is not the impression which the author of the “New Mode” would wish to have conveyed. You say “the shape and use of the instrument” employed in the operation “is no secret.” We hope, then, for the relief of the suffering, and in the courtesy due to the profession, that Dr. Harwood will communicate, through your Journal, a description of the operation—the length of time and number of cases in which it has been tested, and the result of his experience in regard to its effects.

J. F. FLAGG.

31 Winter-st., Boston, March 8th.

Remarks upon the Above.

It is now more than three months since the above editorial was published in the Boston Medical and Surgical Journal, and although the above note from Dr. J. F. Flagg was sent to the editor and published the following week, yet no response has been made to it, and the readers of the Boston Journal are quite as much in the dark respecting this “triumphant achievement of American Dental Science” as they were on the day of its publication.

We have known Dr. Harwood, by reputation, for many years; and have often borne testimony, from *our own mouth*, to the durability of his excellent gold fillings, and when we first saw the above description of his “new mode” we supposed it was an attempt, by the editor, to describe that which he knew nothing about, for certainly none of his readers were any wiser after reading it than before. We expected that Dr. Harwood would see the necessity, for his own reputation, of explaining the matter in some way; but, as nothing has appeared from him, we would ask of our readers if any of them know what this new operation is, and if so, will somebody give us a description which the rest can understand?

It is suggested that Dr. Harwood is only imitating Dr. Hitchcock, a dentist of some notoriety in Boston, whose friend kindly announced to the readers of the Boston Medical and Surgical Journal a short time before the above article was published, the startling fact that he had furnished him with a complete set of artificial teeth with which he could eat and speak! We venture to say that Dr. Harwood’s reputation needs no such bolstering; at the same time, we regret that he does not feel that the “courtesy due the profession” requires him to make the communication called for by Dr. Flagg.—*Ed. Recorder.*

From the American Journal and Library of Dental Science.

PRACTICAL HINTS.

BY W. H. DWINELLE.

Some time ago, we commenced a series of *practical hints*, intending to continue them in each number of the Journal; we have inadvertently failed to do so, but commence them again in the present issue.

Working in gold.—Dentists who are not convenient to gold workers are generally obliged to manufacture their own plate; but whatever their advantages are in this respect, every mechanical dentist should have all of the facilities for working in gold, and acquire this art in all its branches, so far as it relates to his profession. There is as much difference between gold well prepared, and that which is not, as there is between good and bad foil.

A stubborn piece of gold of good degree offineness, by dint of repeated meltings, and great care, is often worked into a very indifferent quality of plate, when, if a little precaution like the following had been used, it would have come from the crucible-like *flowing sovereigns*.

To melt gold filings, scraps, &c.—Before putting the filings, scraps, &c, in the crucible, extract all of the iron and steel from it with a magnet. Put them into the crucible, then throw in a small quantity of sal æratus, and also a little nitre, then, into this, pour from one half to a tea-spoonful of nitric acid, according to the quantity of gold. Place the crucible on the fire, melt, and pour off. Your gold will be sure to work.

If you have an obstinate piece of gold, either granulate it, or roll it into thin strips and cut into minute pieces, then proceed as above.

Muriate of Zinc—to the matter of an ounce vial full, should have a place in every dentist's laboratory. For tinning iron, copper, or brass, and also, for furnishing a very neat, convenient, and rapid means of soft soldering, it is invaluable.

As much zinc as pure muriatic acid will dissolve; reduce one half with pure rain water, gives you the article desired. A slight wash of this liquid upon any of the above metals prepares them for a coating of solder, which may be effected by a slight blast of the blow-pipe.

To make Plaster for Impressions set rapidly.---In the former series of practical hints, we referred to various methods to effect this, such as by salt, alum, &c. &c; yet, we often practice the following: Put the plaster and water in a wedgewood mortar, and grind them thoroughly and ra-

pidly together; this gives you a greatly improved and creamy *batter*, which will set almost immediately on being used.

Shellac, or Dry Varnish—may often be used to advantage, by giving a coat of it to a plaster impression, it may be oiled, and on the plaster being cast into it the mould will part from the model without the least difficulty; the varnish prevents the oil from drying in. Varnishing the plaster models has long been practiced.

Sheets of Wax to Prepare.—When prepared in our mechanical department are too variously useful to specify. Take a smooth piece of fine board say eight inches long, three or four inches broad, and a quarter of an inch thick; having a vessel of melted wax before you, first dip the board into the water, and then into the wax, removing it immediately when you re-dip it until you have acquired the thickness desired. The whole may then be withdrawn from the wood in the form of a *case*, or *sheath*, and afterwards cut into any sized sheets required.

In this manner you may obtain sheets of wax from the thinness of writing paper to any desirable thickness.

Wax to hold Gold Caps to their places.—It is often exceedingly troublesome to make a gold cap keep its place during the early part of the operation of introducing foil into the cavity of the tooth. Several years ago, while Dr. Maynard, of Washington, was visiting us at our residence, he directed us, after perfectly drying out the cavity, to affix a small ring of wax around the under edge of the cap; then press it to its place over the exposed nerve, where, with a little care, it will remain until the foil has fully established it in its place. We have derived great benefit from the suggestion. Just before placing the cap over the exposed nerve, we generally give that organ the benefit of the smallest quantity of concentrated spirits of camphor. Our experience accredit advantages to the practice; inflammation seldom ensues after this precaution.

Soap for Parting.—It is useful for all green moulds, and is particularly convenient when one is in haste. Sculptors always use this parting for their first, or *waste* mould. Common soap will do, but any of the fancy soaps dissolved in water to the consistence of cream, are better. Apply with a fine brush. The smaller the quantity you use the better, providing you are particular to coat the *whole surface*. The only precaution necessary, is to part the cast from the mould immediately after the plaster is thoroughly set.

Mix your Borax with Soft Water.—Many an excellent dental fixture, and many a good temper has been spoiled in the bargain, by grind-

ing borax for soldering, with *hard*, instead of soft water, especially by those living in calcareous locations.

We regard the manufacture of *glass* as one of the useful and elegant arts, but sadly out of place when it steals into the laboratory of the dentist, and arrests the progress of soldering, by interposing a silicious barrier between opposing parts of his work. Had mechanical dentists flourished before Pliny's time, the river Belus would never have been surprised at finding vitrious coated stones on her shore?

Gold Pivots.—We have usually inserted in the following manner: The pivot having been previously well fitted to the hollow screw within the fang, is mounted upon the tooth to be inserted: with a sharp instrument the whole of its exposed surface is cut up into numerous small barbs, opening downwards, then with a watch-spring saw, the pivot is split about one half its length; the two branches thus made, are slightly separated, yet so as to spring together by pressure. The edges of the top of the pivot is trimmed down with a file, so as to admit of its entering the cylinder, when it is forced to its place.

When thus mounted, we have never been troubled by teeth coming out, or being displaced. The *action* of the pivot is self-evident.

Splitting the Rivets of Plate Teeth, is every way preferable to the usual method of heading them down with a hammer. Teeth are often cracked at the out-set, or are so strained by the heading process that they crumble away, and part from the rivets on being heated for soldering.

For linings, we use plate, No. 26. After counter-sinking, and fitting the lining to the tooth in hand, we file down the rivets even with the gold, then, with a small chisel-shaped instruments a little broader than the rivets, we press down upon them until we have split, or broken up its surface into numerous points, at each effort, the outer portions of the rivets are thrown back upon the linings, this binds it effectually to its place. But there are yet greater advantages arising from this method. By splitting the rivets as above, the surface of the platina rivets to be covered by the solder is increased by manifold, while from the fact of their being absolutely beneath the surface of the lining they are not exposed by finishing.

Drilling Dental Blocks.—Those of our profession who reside in large cities where they can command the services of a lapidary, possess advantages over us, in less favored locations, which are decidedly unquestionable; yet our deficiencies, in this respect, may nevertheless be greatly overcome by patience and ingenuity.

It has been our misfortune, on several occasions, to break pieces of dental blocks, oftentimes, too, after soldering sets of single gum teeth, we have discovered the *gum* part of some of them cracked off; yet in neither instance have we despaired of correcting the evil and saving the pieces at the same time. A common drill, made of good steel, and of hardest temper, driven with a bow, or the lathe, if it be occasionally replenished with oil to facilitate its cutting, and preserve its temper, and also if it be re-tempered, and re-sharpened a few times, will soon pass through the hardest dental substitute that ever was vitrified by heat. We confess the lapidary is enabled to work much more rapidly, but when we contemplate him some three hundred miles distant, we can easily reconcile ourselves to the extra hour or so, required to accomplish the same thing. A piece of artificial gum of a single tooth can be perforated in a comparatively short time, and then nicely fitted to its place on the plate, by a small gold rivet. A few days ago, we saw a full upper set of gum teeth, a section of the gum of which we treated in this way six years ago; a small hair line only, indicated the fracture, the gold rivet was too high to be perceptible. Speaking of highly tempered steel drills reminds us of several methods we have practiced.

To Temper Steel Drills—So as to give them the quality of toughness with exceeding hardness. While in Baltimore last season, Dr. Cone suggested to us to heat the drill to redness, and then plunge it into red sealing wax; this we find preferable to using either water or oil; but we have found nothing equal to plunging them, while of a cherry red heat, into a mixture composed of one ounce of calomel, mixed with a pint of pure water.

It is often desirable to harden the point simply, of drills, excavators, blades of instruments, &c., leaving the rest of them in their untempered state. This is effected by placing your dish of liquid on a line below, and immediately by the side of the lighted lamp, then holding the instrument so that its point is but two or three lines above the fluid mixture, you direct the smallest blaze of a blow-pipe upon its extreme point; the instant it acquires cherry redness, drop it into the bath below, and you have accomplished your object. In this manner a breadth of a quarter of a line of a delicate instrument may be made of the greatest degree of hardness, while the rest remains wholly unchanged.

WANTED,—for the library of the N. Y. Society of Dental Surgeons, No. 1. Vol. 2. of Stockton's Dental Intelligencer. Any one who can furnish it will confer a favor.

From the Dental Register of the West.

PHYSICK'S FORCEPS.

BY A. BERRY, D. D. S.

If Physick's forceps for the extraction of the *dentes sapientiæ* were fairly tried by our profession generally, it would, in my humble opinion, be much more highly appreciated than at present. Dr. Keocker is, so far as my information extends, the only dental author who notices them; which he does as follows:

"For removing the *dentes sapientiæ*, and sometimes the second molars, I have occasionally used an instrument invented by Dr. Physick, of Philadelphia, of which I beg to give a short description.

"This instrument is in the form of a strong pair of tooth forceps; of which the parts which commonly form the claws are two blunt blades, somewhat in shape like those of a pair of large nail scissors, and in an oblique direction.

"The tooth is removed by placing the two claws between the tooth to be extracted and its anterior neighbor, with sufficient pressure to force the tooth towards the posterior part of the mouth, in order to destroy the periosteum; the tooth is then to be lifted out of its socket by the same instrument or with another pair of forceps.

"In those cases where the anterior teeth are sound and firmly seated in the sockets, and when the anterior part of the tooth to be removed is not too much destroyed by decay or caries, I have found this instrument very well adapted for the operation."

Every dentist knows the difficulty frequently experienced in the removal of the inferior *dentes sapientiæ*. When they are firmly seated in strong alveoli, as their fangs often incline very much towards the coronoid processes, it sometimes requires considerable force as well as tact to extract them with the forceps commonly made for the purpose. It seldom happens in such cases that a little force applied between these teeth and the second molares, if remaining, fails to elevate them, when they may easily be lifted out of their sockets. An elevator is sometimes used for this purpose, but no one, I think, who has ever employed Physick's forceps in a case of this kind would ever abandon them for any other instrument for luxating the *dentes sapientiæ*.

Their blades should be wedged shaped and sharp pointed, so that if the tooth to be extracted, whether superior or inferior *dentes sapientiæ*, has lost most of its crown by decay, they may be inserted beneath the gums so as to luxate its fangs when closed.

This instrument will also answer very well to divide the molares, when it is requisite, for the purpose of removing their fangs separately.

A dentist called at our office in Cincinnati a few years ago with a pair of these forceps, which he proposed to sell to me for the trivial sum of five dollars, *asserting they were his own invention*. Those excellent cutlers, Mr. Sherwood and Mr. Rees of Cincinnati, manufacture them of the best finish for two dollars; and if our ingenious confrere, who was then making a tour, could have sold a pair to each of the forty dentists then in the city, the profit might have been of material assistance in pursuing his journey.

Remarks upon the above.

The instrument described and commended in the above article, is undoubtedly useful in a few cases for the extraction of fangs of teeth, particularly in the lower jaw when they are too much decayed to afford a strong hold for the forceps. When a tooth, or fang, can be seized, without danger of its crushing under the force of the forceps, the best way to extract it, we think, is to take hold of it and pull it directly out without prying it to the right or left, with any kind of elevator, as all force indirectly applied for the purpose of removing teeth only increases the pain and endangers the tooth. When, however one side of the broken tooth, to be removed, is gone considerably below the edge of the gum and it does not stand too firmly in the jaw to admit of its being removed by an elevator, the pain may be less by applying it to the sound side and forcing the tooth or fang *obliquely* from the socket than it would be to use the gum lancet freely enough to allow the tooth to be taken hold of by the forceps and extracted.

When the wisdom, or any other teeth are too much decayed on their sides to allow a firm hold to be taken upon them and when the side next the anterior tooth is tolerably firm and strong, Physic's forceps answer a very good purpose. It was for a tooth thus situated, in his own jaw, as we have been informed, that Dr. Physic invented the forceps which now bear his name. When the inferior wisdom teeth, for which this forceps is now mainly used, stand far back in the angle of the jaw near the coronary process and incline towards the second molar the application of this forceps will give severe pain, endanger the second molar and produce no effect upon the tooth designed to be removed.

For the removal of the superior wisdom teeth it is of little use in any case, being an awkward instrument to adapt to the upper jaw. These teeth are generally removed with less difficulty, by a skillful hand, than

any molar teeth in the mouth, either with the ordinary forceps made for that purpose or with a simple lanciform elevator inserted between the tooth to be removed and the adjoining molar.

We have often known this instrument to be used unsuccessfully, producing the most intense pain to the patient, and it is to guard our readers against its injudicious use that we have placed the above article in our columns and appended to it these remarks. When properly used it is a very good instrument, but if injudiciously applied it is worse than an unsuccessful wrench with the turnkey.—*Ed. Recorder.*

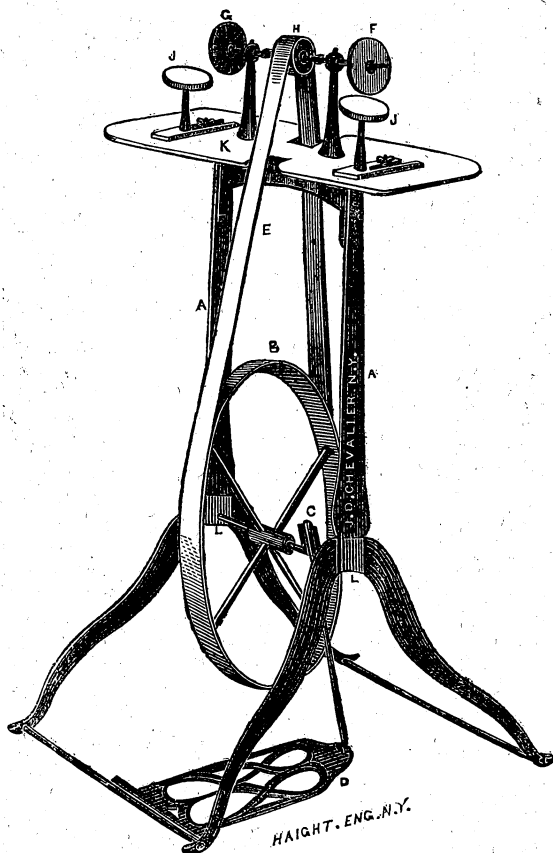
TREATMENT OF HÆMORRHAGE AFTER THE EXTRACTION OF TEETH.—We are advised by practical writers to use in such a case divers astringent gargles, plugging the socket with lint, dipped in alum lotion, or with putty, or even to replace the tooth itself. A Dr. Soirac, of Paris, has lately succeeded in arresting such hæmorrhage, which happened thirty-six hours after the operation, by filling the socket with wax, and slightly compressing it. This simple method is rather less complicated than the means which M. Roux was on the eve of using in an analogous case. He was preparing to tie the carotid for a hæmorrhage of this description! but the patient refused to submit, and left the hospital. M. Cloquet once succeeded in arresting the loss of blood after the extraction of a tooth, by placing in the socket a piece of gentian root, cut into the shape of a tooth; this kind of stopper, by swelling up, effected sufficient pressure on the vessels to arrest all hæmorrhage. Collodion would doubtless prove a valuable agent for the same purpose.—*London Lancet.*

ACCUPUNCTURATION IN FACIAL NEURALGIA.—A few weeks since, a gentleman called upon us, who has been suffering for several years past with an obstinate facial neuralgia. The whole catalogue of remedies, such as leeches, blisters, liniments, ointments, strychnine, &c. &c., had been used in vain; he had experienced no relief, and his disease was steadily advancing. Having heard of my good fortune in curing a very protracted case of sciatica, by the use of the accupuncture needles, a year or two ago, he was anxious to have me insert them into the *supra-orbital nerve* of the left side of his face, the seat of his disease. On my inserting two of the needles, he expressed himself entirely free from pain, a relief he had not known for years. He remained with me a few days, during which I repeated the introduction of the needles, when I dismissed him entirely cured. I received a letter from him but a day or two ago, in which he confirms, in the most enthusiastic terms, his complete recovery.—*American Journal.*

NEW YORK DENTAL RECORDER.

JUNE, 1850.

CHEVALIER'S PORTABLE DENTAL LATHES.



The above cut is so well executed, that only a brief description is necessary.

The frame is composed of four legs, and two columns A A, dovetailed into the boxes L L ; the legs are held together at their base, by two rods (having a flange and screw nut at each end,) the upper extremity of

the frame is united by a bracket dovetailed into the upper ends of the columns A A. The journals of the crank, on which hangs the band-wheel, have their axis in the boxes L L. R. is a mahogany board or table, which is held in its place by the uprights forming the Head of the Lathe running through it, and being bolted to the bracket. J J are rests for the support of the hand, these can be moved in any direction, and made fast by means of a thumb screw attached to each. F, is a grindstone; G, a brushwheel on spindles that can be shipped and unshipped from the mandril. Those spindles have a flange against which the stone or brush rests, with a nut on the outside to fasten them. Burs and small circular saws can also be fitted to these Lathes, for filing off superfluous solder from the plate, and for cutting of Linings in repairing old work.

These Lathes are made of iron, with the exception of the piece of mahogany, before mentioned, they can be taken apart, and put together in less than ten minutes, and are not susceptible of getting out of order; they are of a convenient height, (being three feet eight inches high), and when packed, including the box, weigh 55 pounds. They pack in boxes 26 inches long, 12 inches wide and 7 inches deep, the band wheel is divided through the middle for the convenience of packing. The price for which they are sold is fifteen dollars.

DR. TOWNSEND'S ADDRESS.

We have been kindly favored by the author with a copy of the "Opening Address delivered before the alumni of the Baltimore College of Dental Surgery at the second annual meeting, March 26, 1850, by E. Townsend D. D. S." and have risen from its thorough reading with a degree of pleasure seldom experienced from the perusal of a work of this kind.

The writers of "*Opening Addresses*," as they are generally called, seem mostly to have fallen into one method. So uniform are they that the reader might suppose they were all cut by the same patterns and made up with but a slight variation in the arrangement of the different parts. A page or two devoted to the *importance* of the dental profession, with regrets for its *degraded condition* which, however, always find some consolation in the supposed fact that the darkest hour of the night of ignorance is passed and the cheering dawn beginning to appear, mingled with a severe philippic against quackery, forms items of the highest and most important consideration in the composition of an "Opening Address." Then comes the necessity of a thorough dental

education, with the importance of our colleges and societies to assist in perfecting it, and generally a boasting congratulation for the supremacy to which the dental art has attained in our own country. If to these we add a page or two upon the reciprocal duties which members of the profession owe to one another, the responsibilities of the dentist, the necessity of fulfilling all his obligations to his patients and the public, the comparative importance of the different branches of our art and a few other kindred topics, which may be seen in the pages of any production of this kind, we have a modern opening address prepared to order.

Instead of selecting one subject and dilating upon it, drawing forth all the stores of his mind and enriching and illustrating it with additions from his own knowledge and experience our dental orators feel themselves at liberty to go over the whole field and touch upon all the prominent points connected with mechanical and dental surgery, without stopping long enough on any one to point out a new beauty or kindle a new thought.

It is high time that our orators stopped this rambling method and confined themselves to some one point, and until they do this their addresses will fail to secure that attention and interest in the profession at large which they ought to possess. We do not mean that these addresses should be scientific papers devoted to strictly practical subjects, but that they should embrace but one general topic, as, for instance, any one of those specified above. A well educated mind would find ample material in any one of these to embody in an address of twenty five pages which would be eminently didactic as well as interesting and pleasing to the fancy.

This is the principal fault which we have to find in the address of Dr. Townsend, he touches upon almost every topic connected with our art, and so beautiful and graceful are his touches that we are sorry when he leaves one to go to another. Take for instance, the following upon the subject of professional reciprocity :

“ It is the nature of mind to impart *most* liberally its most valuable acquisitions, and to receive with an equally unselfish avidity all that the social commerce of intellect returns, just as the light is transmitted and reflected from gem to gem in multiplied brilliancy, and as the vivifying rays of solar heat flash from object to object, till an equilibrium of the blessings give repose to the distributive impulse. It is only the lower relishes of the animal appetites that can enjoy a solitary feast. The raptures of the higher intellectual, and of the nobler moral, faculties are all found in a generous munificence, which emulates the ‘prodigality of heaven.’ This is not only the natural religion, but it is also a natural

necessity of the intellect, for by a paramount law of human education it is ordained that by *giving* we shall receive, and in teaching we shall learn. Likely enough this may seem a paradox to the grudging earthling who would first separate himself from the community, violate the sympathies of general good, and then flch away from all around him to feed his own unthankful and unrepaying selfishness. To seize, to hide and hoard, are the only means of accumulation which the lowest instincts know, and it is not given to the shut soul and cavern heart to comprehend the divine policy of those high natures which acquire only to bestow, enjoy only what they spend, and lay up their chiefest treasures by giving them away."

If any of our readers can see anything but the pledge against amalgam, of the American Society of Dental Surgeons, which was attempted to be forced down the throats of a large minority of that Society, we should like to know what it is :

"Intimately connected with liberality in our personal relations, is the spirit of freedom in philosophical inquiry. As associates in study, and fellow-laborers in improvement, diversities of sentiment and conflict of views are to be expected.

"Men are made unlike each other, that each may supply his peculiar gift to the common weal. A flat uniformity of opinion is neither profitable nor desirable. Let each, therefore, respect the individuality of every other, and so *entitle* himself to the liberties he claims for himself; and above all, let us remember, that the legislation of majorities settles no question of science or fact.

"Speculative truth and the resulting practice, lies within the domain of opinion, which is by nature free, and cannot be brought into bondage to any man, or any number of men. Moreover, it is not necessary that all questions should be settled and ended : it is necessary only that the truth should be known, and when every man has given his testimony faithfully he has done his whole duty ; a step farther, and he is trespassing on the rights of others. Settling a question of opinion by authority, is only in fact *unsettling* a great principle, by arresting inquiry, and forbidding future experience to illustrate and modify the past. Science is not a despotism, and its real cultivators are all equally freemen, and their liberty is as essential to the progression of truth, as it is to individual honor.

"As we hope for improvement then, let us welcome change ; and let us dispute no man's right of resolution who is able to overturn an idea, usage, or principle which is now in authority. Associations must not be used to crush out the freedom of the individual, and restrain the natural liberties of thought. There are securities enough for established truth *in* its truth, without defending all we believe, with the jealousy of prejudice, and the fierceness of bigotry. The love of truth easily changes into passion for a creed : let us guard ourselves on that side, and so avoid the petrification of our opinions, which should be kept green and growing while there remains anything on earth to learn."

There is much more in this address which will well repay the reader for an attentive perusal and as it is published in full, in the American Journal, most of our readers will undoubtedly have an opportunity of reading it, our limits will not permit a more extended notice at this time.

OBSERVATIONS ON THE BEST MEANS OF PRESERVING THE TEETH BY M. LEVETT, DENTIST, ALSO LEVETT'S PA- TENT ENAMEL.

A small pamphlet bearing the above title has been laid on our table. It was printed as the author tells us for gratuitous circulation, evidently for the purpose of gaining patronage and increasing practice. The work is mainly devoted to the preservation of the teeth, artificial teeth and an appendix in praise of Levett's Patent Enamel, backed up and endorsed by three or four pages of extracts from newspapers, and certificates from doctors and citizens of more or less notoriety.

The first chapter of this work on the importance of cleanliness and the usual operations as a means of preserving teeth, gives much useful information which should be in the possession of every individual who values a good set of teeth, although it contains nothing particularly new (except that the cementum and pulp of a tooth are synonymous, which is new to us) still we should not object to seeing it in the possession of every family.

The second chapter also contains much upon the subject of artificial teeth which should be known to those who need them; but we are not quite disposed to "render unto Cæsar the things that are Cæsar's" if by this Mr. Levett means the acknowledgement that he was the *first* to insert teeth on the principle of atmospheric pressure. We are glad that Mr. Levett has given us an opportunity to expose this pretension of his, for he directly asserts, in the commencement of the third chapter or second part of his pamphlet, what we have frequently seen in his advertisements, that he was the *first* to introduce the principle of atmospheric pressure for the purpose of sustaining artificial teeth, and fixes the time in 1835. Now as early as 1832 Dr. Parsons of Boston showed us, in his office, a complete set of upper teeth sent in from Cambridge to be repaired, which he said had been worn for several years without clasps or spring—Mr. Woofendale also asserts that he "stuck them up more than forty years ago." Mr. Levett may have been the first to give the adhesive power the scientific name of *Atmospheric Pressure*, but cer-

tainly others, perhaps without knowing it had, long before him, employed the same principle for the same purpose.

The subject of an enamel for covering plates has been so often noticed by us that it may be passed over at this time unnoticed as it contains nothing particularly new or interesting.

We are always glad to see pamphlets containing popular information upon the subject of the teeth circulating among the people and wish that every dentist would publish one for distribution among his patients and patrons. Those who have done so we believe have been amply remunerated for the original investment and it is certainly a much more modest and professional way of advertising than placing one's card in large capitals in the daily papers as some do, in the same column with pig iron, potash and pine plank. We say again let every dentist issue his pamphlet, but be careful not to promise more than he can perform and in a neat and professional manner.

AMERICAN SOCIETY OF DENTAL SURGEONS.

But little business is reported in the Journal as having been transacted at the late meeting. The topic which excited most interest was the moral standing of one of its members; but as the committee, to whom this subject was referred, could not report they were discharged and afterwards re-appointed and instructed to report at the next meeting. No report was made by the committees on *Dental Education* and *Practical Dentistry*. The committee appointed to report on the subject of the *Amalgam Pledge*, which has given so much trouble to the society, consists of Drs. A. Westcott, E. Townsend and J. H. Foster. We have reason to believe that a majority of this committee are sane upon the subject of this pledge, and expect, therefore, a fair and reasonable report. Dr. C. O. Cone made a verbal report on the *Tabular Sheet* (a printed blank on which to report a record of operations,) stating that it was not completed. He was requested to report at the next meeting. Dr. W. H. Dwinelle withdrew from the editorial care of the Journal, and Dr. E. Maynard was appointed in his place. The officers of the Society hold over until the next annual meeting, by resolution of the Society. The remainder of the session was employed in practical discussion upon the subject of filling over exposed nerves. Dr. Hulihan also exhibited a new method of putting teeth on plate and several ingenious fixtures for regulating teeth. Dr. Townsend also exhibited fixtures for regulating teeth and explained their use. The Society then adjourned to meet at Saratoga Springs on the second Tuesday of August, 1850.

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No. 10.

R A N D O M S H O T S .

BY S. M. HOBBS.

NO. ONE.

What constitutes a good dentist? A great many things. He is a composition of various elements. He is made up of a range of qualities that describe a circle of accomplishments ; some of these we will try and cluster.

In the first place, as a sort of necessary platform, the good dentist is a man of *brains*. And these brains are of a kind that amounts to something—hardy, substantial, trained, educated, usable, consistent, symmetrical, reliable. He is a sensible, intelligent, every-where-seeking, persevering, light-hunting, industrious, thoughtful man. All that can raise his art towards perfection has his constant, undeviating, whole-souled, loving, energetic effort. His head, eye, hand, being, take in his wide, strong, exhausting embrace. In a word, he is a man of brains.

He is a gentleman. A gentleman, we may say, from hat to boot, inclusive. He never thinks of being otherwise. It would be out of his course, taste, custom, sense of right, duty, religion. The thing is in him thoroughly. Nor is it so much a duty as a pleasure. He is a mover in circles where only the gentleman is tolerated. He is member of a profession where only such should be found. To be aught else is as fatal to policy as to popularity—if indeed such a view of the matter be allowable. He originates from a source somewhere above a brothel or a subterranean gin-shop, and has character, station, credit, life, to support. The good dentist is a true, cut-in-the-diamond, natural, in-and-out-stilled, principled gentleman—one of the “old school,” if you please.

He is a man of Character. Character he wants every day, and character he must practice. And he has it to a certainty. His position with relation to his fellow men demand it with a voice not to be evaded. Without this little else is unsustainable. The skill he may have, the science he may master, the accomplishments he may boast, but put him into muddy water and against the tide if he lacks the *all-essential character*. He wants that to finish the man, to top the dentist.

But the elements in the constitution of the good dentist are manifold—too numerous to detail short of a ream of foolscap. In brief, he must be “booked” in all “new notions” and “new lights” of the age, which he will do or of course lose his caste. The beacon star and motto of the time is, “*Onward* ;” and the golden wheeled chariot of *Progress* moves on in advance with a rapidity which only he who is alive, awake, earnest, watchful, and a-doing, can measure, and whose triumphs he can gather. He must be a diligent searcher after all that will add the least to his skill, knowledge, respect, station, character and improvement of whatever sort—moral, intellectual, professional.

What does not constitute a good dentist. We do not like to reflect that there are any but *good* dentists, much less to touch them with our pen. But as a picture must have its back-ground, however dark, we proceed briefly to the task.

What does not constitute a good dentist, is the practice of abominable, shameful, unblushing, impudent *Quackery*. This supposes presumption, ignorance, knavery, rascality, want of all that can make a man and the presence of all that should make a demon. The bad dentist is always and unqualifiedly a quack. An arrant quack it may be from nature, possibly from education, but probably from the lack of it. He is a quack because every hour of the day, every breath of his life is devoted to libeling and pulling down and disgracing one of the noblest and most useful and most difficult arts that blesses and adorns man. He is a ruinous quack to the public, but a much worse one to himself, for he carries with him, graven on his own heart, the stamp and odium of a curse to mankind. Would that they might only behold it before it is too late.

He is not a gentleman. The bad dentist is *not* a gentleman. He never can be. The thing is a paradox—contradiction in terms and in nature. The coat, the hat, the manner, the speech,—all the gilded *seemings* may be there—but *inside*, there where reality, truth, conscience, the sole substantial *man* exists, is nothing but sterile waste and ashes. The dainty lip, the honied tongue are no apologies for the skillful hand and judging head. He is a hanger-on, a mill-stone, a shadow, a fool—and no gentleman—or he would leave a business for which neither nature nor education has prepared him.

Character. This is an alien to him in the most significant sense. If he has any conception of it, it is a thing afar off—as of some unreachably star in the sky. It is that with which he has nothing to do, nor any concern, since it is entirely, to use a mercantile, but good phrase, “out

of his line." Such an adornment would be a burden—a dead weight; if any thing, a *disgrace*. It could not coalesce with quackery; it could not commune with presumption, it could hold no fellowship with deception and fraud. The bad dentist has no character, wants none, could sustain none, and is really better without one, since if he possessed one it would so conflict with his moral nature as to practically annihilate the whole man. On second thought we should not mind the annihilation.

It does not constitute a good but a bad dentist to leap from a stable, a blacksmith's, or a barber's shop, without previous preparation into the delicate manipulation of the dental art. One may curry or shoe a horse, smooth the wiry-bearded face, and make regular and glossy the knotted truant hair, and all men, more or less, daily acknowledge him to be a benefactor. In his hand the brush, the hammer or the razor is an honor; put the forceps or pluger into it and malpractice and disgrace only follows. He is good enough in his own chosen and adopted calling but fearfully *bad enough* in any other, and most of all in a profession requiring the earnest, anxious, attentive study of head and hand for patient years. The merits that in the one case are properly honored, in the other are visited by the full and just contempt of all enlightened minds. While sober, industrious, and persevering, he may be a most respectable, useful and good man and citizen, he may be even skillful and pregnant with ingenious expedients and nice contrivances; but when, from morbid desire or reckless presumption, he breaks his circle and madly dashes into the dentists' chosen path, he outrages others and himself. He takes that upon his shoulders which neither nature, preparation, honor, or common sense has gifted him to do. He has left his shop, his tools, and decency, and embarked on a voyage where his efforts at best will be but to quack, humbug, delude and victimize—an active curse to every community he touches.

The dirt of the blacksmith, the odor of the ostler, the manner of the barber can never make good dentists. And as facts and persons are, these are about the only qualifications *men* (excuse the too complimentary title) from these employments have brought to the business. Singularly and signally characterized by daring ignorance, reckless self-confidence, and unblushing rascality, they have done and are casting a foul odium over our noble art, that is alone saved from instant perdition by the most strenuous efforts of the honorable, scientific, skillful; those who make the name and art of dentistry a lofty, dignified, beneficent, humanizing calling.

But our limits are up. We beg the readers' pardon if we have shot wide of the mark. In another number we will try and shoot more and lighter and somewhat more practical shots.

THE PARIS DENTISTS' COPPER AMALGAM.

We publish the following, from an article by Dr. Pettenkofer in the *Annalen der Chemie und Pharmacie* as translated in the *Chemist* by C. and J. Watt, if for no other purpose as a matter of mere curiosity to our readers, but above this it contains many scientific observations applicable to the silver amalgam and the combination of other alloys. The copper amalgam has been used to considerable extent by dentists in our vicinity; but, so far as we know the silver amalgam has taken its place. A respectable dentist who has used this amalgam for several years, in a recent conversation assured us that as a *stopping* for a decayed tooth he considered it more perfect than any other kind of amalgam, although it did not retain its color in the mouth so well as silver amalgam. He assured us that its adhesive properties were so great that it might be put into a tooth so broken away that scarcely any cavity remained, that, even, when stuck upon a painted plaster wall and allowed to harden it could not be removed without strong effort. We have never used it because we considered that *primae facie* copper was bad to put in the mouth to remain any great length of time. So we and many others *have* said of mercury, until a long course of observation in every variety of cases has convinced us that, when combined with virgin silver or silver and tin, it is perfectly harmless. So it may be when combined with copper. The poisonous property of *one* material is frequently neutralized, or otherwise rendered harmless, by combination with another, so it is possible that by combining two poisonous materials a perfectly innoxious compound may be formed, when this is proved by a long course of experience and observation to be the case with the following amalgam we may be induced to try it, at present, however, we prefer the silver amalgam because it makes a very perfect stopping when properly prepared, holds its color well in the mouth, and, we believe, has been proved to be perfectly harmless.—*Ed. Recorder.*

“In Paris some dentists use an amalgam of copper with great advantage, to fill the cavities of carious teeth; it is sold in little cakes of about four grammes, costing two francs each. The color is greyish; it is very hard, and adheres so firmly together as to require a powerful stroke of a hammer to break it. It is of a finely granular crystalline texture. The

sample I examined consisted of 30 parts of copper and 70 of mercury. When heated to the boiling point of mercury, it swells a little, and a few drops of mercury appear on the surface. Being triturated for some time in a mortar and cooled, it is as soft as moist clay. In this state it can be pressed into the smallest cavities. After a few hours it becomes so hard, that a sharp-edged piece will engrave upon tin and cut bone. When soft, a very liquid amalgam of copper and mercury can be expressed by a powerful pressure between the fingers. The specific gravity in the soft and hard state differs little.

“ This metallic compound is an interesting example of the effects of crystallization and amorphism on the properties of bodies. When soft, it shows not a trace of crystallization. It can be spread with a knife like plaster, but when hard it is very brittle; thin layers break like glass, and the fracture is granular crystalline. Among metals, this copper amalgam is the first known example of two states of a body at the same temperature; and is as instructive as the elastic amorphous sulphur and the brittle stick sulphur amongst the metalloids. It is a most valuable property for the purposes of the dentist, that the specific gravity should not vary in the transition from the amorphous into the crystalline state, as the mass when hard occupies exactly the same space as when soft. I have pressed the soft amalgam into glass tubes, and when cold it formed a perfectly air-tight stopper.

“ I have prepared amalgams containing between 25 and 33 per cent of copper; all became crystalline after heating; those containing most copper solidified more quickly, and became much harder than those containing less. Alloys of 25 parts copper and 75 mercury required three days to become completely crystalline. There is no atomic proportion between the copper and mercury in these crystalline compounds any more than between the constituents of other metallic alloys. A combination of 1 equivalent copper with one equivalent mercury would require in 100 parts 23.8 copper and 76.2 mercury. Perfectly analogous compounds occur in the native silver crystalline amalgams; by analysis their amount of silver varies between 25 and 86 per cent. Two metals crystallizing together proves them to be isomorphous. This is the case with copper, silver, gold and mercury.

“ This copper amalgam is likewise an interesting example of the transference of the state of aggregation from one body to another; the liquid mercury with the solid copper, passes into a firm crystalline state, which it can only assume at a very low temperature, if alone; as many solid salts become liquid by contact with water.

"Having tried several plans, I found the following the best:—A weighed quantity of mercury is dissolved in boiling sulphuric acid, and the resulting crystalline paste of protoxide and peroxide of mercury, triturated with finely-divided metallic copper in a mortar with water, at 140 degrees to 158 degrees F., for some length of time. There must be sufficient copper, 1st, to reduce all the mercury; and, 2nd, that enough copper may amalgamate with the mercury. Copper obtained by reducing the oxide in hydrogen is the best, but that precipitated by iron from sulphate of copper will do. The plastic mass, well washed, is put into a leather bag, and as much mercury as possible is pressed out; it is then formed into little cakes, and in a few hours hardens to a mass, the fracture of which resembles in appearance the brittle alloy of lead and gold.

"This amalgam is useful to stop machines and chemical apparatus, where cork, glass, &c., cannot be used; it will, probably, likewise be of service to artists and surgeons."

[An editorial note states that this amalgam may be made with ease by moistening finely-divided copper, precipitated from a solution of sulphate of iron, with proto-nitrate of mercury, in a porcelain mortar, pouring on it boiling water and metallic mercury, and triturating it for some time. The at first brittle mass soon becomes soft, and when the right quantity of mercury has been incorporated, acquires the desired salve-like consistence.]

From the Dental News Letter.

LEVETT ON ENAMEL.

"*To the Editor of the New York Dental Recorder:*

SIR—In the March issue of your Magazine, under the head of "Enamelled Plates," I notice a communication (anonymous) preceded by an editorial introduction, which, if left unnoticed on my part, would imply a tacit acquiescence to its absurdities.

It becomes, therefore, a duty which I owe to myself, as well as to the professional and unprofessional patrons of my invention, to examine the merits of your correspondent's statement, and to answer the absurdities contained therein, *seriatim*, and I trust that in common fairness, you will grant space for this communication in your valuable publication.

Your correspondent begins by informing us, that he had given his certificate recommending it, "before he had properly tested it in the mouth." To say the least of this acknowledgment, it conveys but a poor

impression of the gentleman's professional conscience : for how could an experienced practitioner *recommend* an article to the world, and to his patients, without first testing the thing properly ? (A)

But with all due deference, I am inclined to doubt the assertion of having a certificate from this source ; and this doubt arises solely from the *anonymous* nature of the article. He assumes not even a *nom de guerre*, to be identified, and certainly the certificate which he alludes to could not have been *anonymous*. In the second paragraph he says, "It does not stand," &c. Prof. Chilton's certificate as yet remains uncontradicted by facts, (for anonymous assertions must always go for nothing,) but I am ready to furnish *abundant proofs* that it *does stand the acidity* of the mouth, and is as *tough* and imperishable as an enamel for that purpose can possibly be. (B)

If a plate is *well fitted*, and sufficiently *strong*, it cannot spring. I therefore can only advise *particular attention* to that fact, whenever my enamel is used. (C)

Of the recipe contained in the article in question, I have but a few words to say. It is *not* mine, nor does it in the least resemble mine, but is a prescription, *which, could it be* made up at all, would be most likely to produce the very faults complained of. (D) But I contend that it cannot be made up, and for these simple reasons. The "bone dust" which forms a principal component part of this mysterious concoction, would be utterly destroyed by the intense heat necessary to melt the enamel in its preparation.

Again, the recipe advises us to pour the hot melted ingredients together on a *porcelain slab*. Let us for a moment look at the nature of these ingredients. Three parts are *pulverized flint glass*, and one part is *silex*, and one and an eighth is *bone dust*, the latter of which has, before we arrive at the "pouring out" point, entirely disappeared, and "left not a trace behind," whilst the two former and principal parts assimilate in their nature and qualities so perfectly with the porcelain slab, that no power I am acquainted with could possibly sever the two thus strongly and firmly united. But perhaps the inventor of this remarkable prescription intended to take porcelain slab and all, and make it into impalpable powder ; but if so, he should have so stated. (E) One word more about the motive which seems to have prompted the article in question. There are such things as *professional jealousies*, hidden under *anonymous* attacks ; and it strikes me very forcibly that the recipe given was merely concocted for the purpose of inducing experiments with it which should end, as they *must*, in disappointment. But if my

own patent enamel was "good for nothing," what was the object of puzzling the brains of your readers, by giving them a method of making something *acknowledged* to be *worthless*, and that has been abandoned by your correspondent himself; whilst, at the same time, he attempts a slight infringement of my patent, by the assertion that it is "quite *equal* in every respect," and so nearly like mine, that it cannot be distinguished from the patent one. (F)

Your correspondent greatly enlightens the scientific readers of your scientific journal, when he informs them to apply *his* enamel with a piece of *wood*; doubtless he is very desirous of giving a "*cord*" of information. (G)

Like many other new inventions, I do not think that my patent enamel has yet arrived at that high state of perfection which I expect to attain; it is yet susceptible of improvement, and I am still experimenting upon it, in order to make it, in every respect, all that my professional brethren may desire. Whatever new improvements I may make upon it, will, as soon as sufficiently tested, be quickly and cheerfully communicated to my patrons and those to whom I have sold the rights for particular States and localities.

Respectfully, your obedient servant,

M. LEVETT

No. 628 Broadway, March 30, 1850.

Remarks upon the above.

The above communication from the News Letter, which through inadvertency was neglected in our last, we now publish at the request of the writer.

(A) The question of morality, respecting the propriety of our correspondent giving a certificate recommending Mr. Levett's enamel before he had properly tested its value, we will not argue. We will admit that articles of this kind, coming in the suspicious character of *patent* or *secret* nostrums, or compounds, should be thoroughly examined before recommending them to the public; but if our correspondent had no right to recommend it, before properly testing it in the mouth, what right had Mr. Levett to publish such certificate, unless he wished to deceive the public, knowing as he did that the writer of the certificate had not had sufficient time to test the merits of the enamel when worn in the mouth?

(B) As to the qualities of this enamel we know next to nothing. Soon after it was perfected by Mr. Levett, he called upon us and left a *very small* sample of it, but not enough to cover a single plate. We tested it on a small piece of gold and found it flowed smoothly and at a tempera-

ture below the melting point of common dentist's solder, and we so stated in the Recorder. Some months after Mr. Levett again called and wished us to give it a more extended notice. We told him that we had not had an opportunity to thoroughly test its virtues ; but that if he would leave with us enough to make a fair trial of it, we would do so and give the result to our readers. He went away saying that he would consult his partner and that is the last we heard of it.

(c) Every practicing dentist knows that plates, even when fitted in the most perfect manner, cannot in all cases be made so strong that they will not spring when the teeth are bitten hard upon in mastication, and the least spring of this kind will in a short time cause the enamel to flake off, leaving a rough and unpleasant surface and adjoining edges exposed to the tongue and lips. This we conceive to be the greatest objection to this kind of covering for plates, and one which, from the nature of the case, can never be overcome by any kind of earthy brittle materials.

(d) As to whether the enamel published by us is the same as Mr. Levett's we cannot of our own knowledge say. We did not publish it as his and he says, "It is *not* mine!" we are, therefore, in all courtesy bound to believe him ; yet shrewd lawyers tell us that the denying of a thing by any person before he is charged with it, only subjects him to suspicion. We trust it may not have this effect in the present instance.

(e) Since publishing the recipe from our correspondent we have combined the materials contained in it and experimented enough with it to find that it is not obnoxious to the objections urged against it by Mr. Levett in the above article. In the first place the bone dust will not be destroyed, for it will be borne in mind that this article is prepared by calcining the solid parts of bone, thereby exposing them to a much higher degree of heat than is required to melt the enamel, and only using what remains which is nearly pure phosphate of lime, and which, says Prof. Silliman, "*melts by the most intense heat into an opaque white enamel.*"

Again, the contents of the crucible, when working our correspondent's enamel, will not, if poured upon a porcelain slab, adhere to it any more than melted tin or lead will adhere to brass or iron when poured upon it, and for the same reason, viz : it melts at so much lower temperature that it becomes cool before the slab on which it is poured is heated anywhere near the melting point, and which it must be before the enamel will adhere to it. This any of our readers will understand who are ac-

customed to make metallic casting by pouring one melted metal upon another which fuses at a higher degree of temperature.

(F) Now, if this enamel be good for anything except to advertise, why does not Mr. Levett send samples of it to the editors of the different dental journals, let them investigate it, and speak of it as it justly deserves? Certainly he cannot be afraid of "*professional jealousies*" in Philadelphia, Baltimore and Cincinnati, whatever he may think of us here in New York.

(G) We do not think that our correspondent was actuated by any jealous or unkind feeling towards Mr. Levett when penning the recipe and accompanying remarks, but simply desired to give such information as he possessed upon the subject. We certainly are not conscious of having any but kind feelings towards him, either now or when publishing it, and believing, as we now do and then did, that Mr. Levett has no patent for any kind of enamel but only for a japan or varnish; we did not feel that our correspondent was guilty of the slightest infringement upon Mr. Levett's rights, either by using, vending, or publishing that enamel.—*Ed. Recorder.*



OBSERVATIONS ON THE TRANSPLANTATION OF TEETH,

Which tend to show the Impossibility of the Success of that Operation: supported by a New Theory. By JAMES GARDETTE, Dentist.

The following article, originally published in the Medical Recorder, we take from a late number of the American Journal. It contains many interesting cases of the transplantation of teeth, with an explanation of the causes of failure. This operation was revived again, by a dentist, in this city, a few years since, but ended, as it always must, in a total failure. The article of Dr. Gardette will be found interesting as a part of the history of the progress of dental science, and will be useful to refer to by those who keep a file of the Dental Recorder.—*Ed.*

I had, a considerable time since, determined to write on the subject of the transplantation of teeth, from the mouth of a living person into that of another; but my great occupations, and the diffidence I always had in writing English for publication, have prevented me from attempting it; and it is probable I should never have done it, had I not been encouraged by my friend, Dr. Mease, who, after a conversation on that subject, lent me the first volume of the Memoirs of the Medical Society of London, in which several cases of disease succeeding the transplantation of teeth are published, by J. C. Lettsom, M. D., &c., one of which

happened in August, 1785. I read the articles with great attention, and found I was acquainted with the first case, which had been related to me by the gentleman, J. Y., now a citizen of Philadelphia, in whom it had occurred a few years before.

The reading of those articles, and the observations of my friend, Dr. Mease, who is very much alive to the dissemination of useful knowledge, determined me to write this paper, and at the same time to endeavor to prove the impossibility of transplanting teeth from one mouth into another, with the success expected and promised by the operator, viz. that the tooth transplanted will remain firm, and as useful as the tooth which had originally grown in the jaw.

I shall preface this paper by informing my readers that I arrived in Philadelphia in June, 1784, and began to practice my profession; and that Mr. Lemayeur, with the reputation of an eminent dentist, had transplanted one hundred and seventy teeth in this city, in the course of the winter of the years 1785 and 1786, as he told me himself, at Baltimore, in the fall of the last mentioned year; and that, of all those transplanted teeth, not one succeeded! Some became firm, and lasted, more or less so, for one or two years in the sockets in which they had been inserted; but those cases were very rare. In the course of my practice, after that time, I had occasion to extract at least fifty of these transplanted teeth—most of them without an instrument, with my fingers only—and to replace them by artificial teeth. Many accidents occurred to the transplanted teeth, while they were growing firm, and some never got firmly fixed in the sockets at all. I shall now relate some cases of that nature, which happened to teeth transplanted by Mr. Lemayeur, which, I dare say will be recollected by some persons now living in this city, and perhaps by relations of the persons who were operated on at the time.

Mrs. A. W., a lady of great respectability, had several, I believe *three*, front incisors of the upper jaw transplanted; after suffering for a considerable time, the transplanted teeth not becoming firm, she was obliged to have them extracted, and artificial teeth replaced in their room.

Miss W., a young lady at a boarding school, had the four upper front incisors attempted to be transplanted, but they never became firm; the gums were so inflamed and ulcerated, that the disease was communicated to the lip, so as to form a complete adhesion with it; they were separated by scarification, but the adhesion of the gum and lip could not be prevented, until the transplanted teeth were extracted; which

being done, the lip and gum perfectly cicatrized in a short time ; the space was then filled with artificial teeth.

I was informed that, about the same time, a young lady of New York, Miss S., had a large front incisor transplanted, in the upper jaw, which produced a disease, judged by the physicians who attended her, to be the *lues venerea*. This young lady was so affected by the disease, that, notwithstanding all the medical aid given her, her health declined, and, after considerable suffering of mind and body, she died.

I was also informed, that a Mr. T., of Virginia, had a front upper incisor transplanted about the year 1790, by the same dentist, the exact time not being remembered, which occasioned much inflammation in the gums and eyes. After some time, the *ophthalmia* became severe, and other symptoms justified the opinion that the *lues venerea* had been introduced into the system by the transplanted tooth, which, no doubt, was taken from an unsound subject. I was informed at the time, that Mr. T. had lost his sight, and that after lingering for some considerable time, he died.

Mr. W. H., of Philadelphia, had three upper front incisors transplanted in London, in the year 1784 or 1785, under the superintendence of the distinguished surgeon, John Hunter ; the operation was performed with all the care and skill possible, and the teeth became firm in a short time, without any accident of importance. I saw the gentleman in this city about five years after the transplantation of the teeth, which, at that time were somewhat loose. He consulted me as to the cause of the looseness of the transplanted teeth. On examining his mouth, I found that the teeth of the under jaw, directly under the transplanted ones, struck against them on their internal surface ; and I judged that the continued shock occasioned by the under teeth, was the real cause of their looseness ; but that the original cause of the under teeth touching the upper, was the inflammation of the gums of the transplanted teeth, which caused their dropping down, and thus to meet the under incisors opposite to them. In order to remedy this inconvenience, I proposed to shorten the under teeth, which I did with a file ; I then advised the gentleman to make use of an astringent wash to brace the gums of the transplanted teeth, which were inflamed, and somewhat spongy ; my prescription was followed, and the teeth became firm in the course of two weeks. I did not see the gentleman's mouth after this for a considerable time, as he lived out of the city. But having had occasion to see him some years after the time I attended him, I perceiv-

ed he was without the transplanted teeth, which he had never replaced.

Of all the transplanted teeth that I ever saw, or heard of, none have lasted so long as those transplanted in the mouth of Mr. W. H., for they remained very firm for about five or six years, and lasted about as long in a loose state, which increased until the teeth either dropped out, or the gentleman extracted them himself with his own fingers; for I am persuaded they were not extracted by a dentist.

None of the teeth transplanted by Mr. Lemayeur, in Philadelphia, remained firm two years; and in two or three cases which I have seen, of teeth transplanted by other dentists, they did not remain firm one year.

Mrs. J. P. had a large incisor of the upper jaw transplanted in London, also under the care of the celebrated John Hunter, in the year 1780, or thereabout, (the time which was mentioned to me not being remembered,) the tooth became firmly fixed in a short time; but, about a year after its transplantation, a small discharge of matter was perceived issuing from the under edge of the gum, on the left side of the transplanted tooth; but this was not regarded at the time, being very trifling. The daily attention paid the teeth, by washing and brushing them, prevented the lady from taking notice of its progress for some years.

Having determined to leave London and come to Philadelphia after the peace of 1783, she had, a few days before her departure, her mouth examined by her dentist, who readily found that a *fistula* was the result of the continual issuing of a small quantity of pus from the socket of the transplanted tooth. It was then judged by him, that the tooth could not remain long in its place; he advised the lady to have a tooth prepared,* that could be easily fixed in the place of the transplanted tooth by a dentist, should there be one in Philadelphia, (which, it appears, was much doubted at the time in London.) After her arrival in this city, Mrs. P. consulted Dr. W. Shippen, who, after examining her mouth, determined that the transplanted tooth should be extracted. The doctor sent for and asked me if that was my not opinion; after examining and probing that part of the socket which could be reached with a probe, I found that the left side of the root of the tooth, as also the socket, were completely decayed to the extremity of the root, which was perfectly ad-

* It was a porcelain tooth, made by Dubois Dechman, a French dentist, in London, who first invented the manner of making artificial teeth out of porcelain, and which has been so much improved since by several dentists, and particularly by *Fonzi*, an Italian dentist and chemist at Paris.

herent to the socket on the right side, the tooth being still very firmly fixed, notwithstanding the existing caries.

I told Dr. Shippen that the tooth ought to be extracted, in order to cure or dry up the *fistula*. But there was some difficulty in extracting the tooth without breaking that part of the *alveola* which was completely ossified with the right side of the root; and which I thought I could avoid, by means of an instrument which I would cause to be made by our old and only cutler, Mr. Schively, and which I described to the doctor, as follows, viz. the blade in the form of a narrow straight scalpel, thin, and very sharp-pointed.

After having informed the doctor of my intended manner of performing the operation, he approved it. At the time fixed by the lady, I operated in the presence of Dr. Shippen and a gentleman; a friend of the family, (Mr. John Mifflin,) in the following manner:

I separated the adherent plate of the socket from the roof of the tooth, with my sharp-pointed instrument, with all possible care, in the space of about two minutes; I then removed the tooth with a strait forceps, with the greatest ease imaginable.

The exfoliation of that part of the socket which required it, and the cicatrizing of the gums, required nearly a month, when I replaced a natural tooth, mounted on a gold plate, after the mode which I had invented about that time; this tooth resembled so perfectly the large *incisor* which remained, that no person could perceive the difference.

The transplanted tooth being examined after extraction, it was found that one half of the root had been destroyed by caries, longitudinally to its extremity, which proved the absolute necessity of its removal.

It is possible that the dentist who transplanted the tooth, finding the root of that tooth too big, filed off some of its thickness, (as I have heard of that being done sometimes,) to let it go easily in the socket; the periosteum having been removed, the root could not adhere to the *alveola* on that side; and that may have occasioned the formation, and of course the emission, of the purulent discharge spoken of. In order to establish my theory, I shall cite some cases which have occurred to me in the course of my practice, which will prove that a diseased tooth, taken from its socket, the cavity in it plugged, and the tooth replaced in the same socket, will become, in the course of ten or fifteen days, as firmly and solidly fixed as it was before the extraction, and last for a great number of years, and sometimes during life. This is certainly a tooth transplanted, to all intents and purposes, but in the same socket from which it was extracted. If, therefore, another tooth could have been found, the root

of which was exactly of the same length, size and form, it might have been placed in the socket of the tooth just spoken of, and it would certainly have become as firm, and have lasted as long as the tooth which had grown in that socket.

I have frequently partially extracted and returned to their sockets, small and large molars, which had been very painful, after having cut the gum on the side opposite to that on which I intended the tooth to fall, in partially extracting it. The purpose of this operation is to separate or rend the nerve asunder, so as to prevent the tooth from giving pain in future ; the tooth is then put back into its socket, permitted to become firm, and the cavity is then to be plugged ; this I always did with full success. It has sometimes happened that a dentist has extracted a sound tooth for a bad one, either by his neglect in ascertaining the tooth to be extracted, or by misinformation from the patient. If such tooth is placed in its socket immediately after extraction, it will certainly become as firm and useful as ever.

All that has been said will prove, I hope, that a tooth taken out of its socket, and put back in its place, will become firm and useful ; therefore, if a tooth taken from another subject, the root of which is of the same shape, length and size, is placed in the socket of the tooth extracted, it will certainly become as solidly fixed as the original one. But the dentist who transplants it must judge that the roots of both teeth are precisely alike in size and shape, before he sees either ; that being impossible, the operation can, therefore, not succeed.

In the year 1801, I was requested to call on Miss B., a young lady of great respectability, who had suffered extremely from pain in a front tooth. I found it was the canine tooth of the left side of the upper jaw which caused the violent pain. I was requested to extract the tooth affected ; but I observed to her that the loss of that tooth would be very great, and that it might be preserved by replacing it in its socket after extraction, and that it would become as firm and useful as ever. After explaining the manner in which I should perform the operation, she consented to have it done, and I proceeded in the following manner : I extracted the tooth with a straight forceps, cleared the cavity of its carious parts, filled it with gold, washed it in warm water, and inserted it in its *alveola* ; all this was done in the space of five minutes. I then requested Miss B., to bite a piece of flat cork, (which I had prepared for the purpose,) several times in the course of the day, and to wash her mouth frequently with a slightly astringent liquid, which I prescribed ; if I re-

collect right, the tooth was perfectly firm the twelfth day. That tooth rendered service to the lady for nearly eighteen years, as I extracted it, I believe, seven or eight years since, having become more carious, and therefore troublesome.

It is to be observed, that it is only the incisors and canine teeth which are attempted to be transplanted, as they have but one root. It is therefore the same species of teeth which I have extracted, plugged and replaced in their sockets ; I have performed the same operation frequently in the course of the last twenty-five years of my practice, with the same success as in the case last mentioned. I will, however, detail the particulars of one case, in which the tooth extracted and replaced was a small molar of the under jaw. This operation was performed in the mouth of a lady of this city, Miss —, and I expected complete success, but, on examining the tooth after extraction, I found that the extreme end of the root being bent, it broke in the extraction, and the piece so bent, (about an eighth of an inch,) remained at the bottom of the socket ; notwithstanding the accident, I replaced the tooth in its socket, after having plugged it, in hopes that a callus might be formed, and a junction take place. The tooth was replaced for nearly a month before it became firm ; but no kind of inconvenience was experienced, either by inflammation or pain. The tooth lasted in that situation full six years, when it became troublesome and a little loose. I extracted the tooth in the course of the seventh year ; the broken piece of the root remained at the bottom of the socket, which healed completely, and has never given trouble from that day to this, although six or seven years have elapsed.

About eight and twenty years since, I was sent for by Miss G., a young Quaker lady from Virginia, who was in great pain from a large molaris of the upper jaw, and confined to her room. After examining the tooth complained of, I found it to be a very large one, with a small cavity in the center of its crown. I proposed the operation of partially extracting the tooth, replacing it, and to plug it when it had become firm. The late Dr. Kuhn attended the young lady at the time. I informed him of my intention, and explained to him how I should proceed ; the doctor having advised the young lady to let me make the experiment, the operation was performed. About two or three weeks after, I filled the cavity with gold, and I never heard any more complaint from it. I might cite several other cases of the same kind, which succeeded as well ; but let these suffice.

My opinion, therefore, is, that teeth cannot be transplanted from one

mouth into another, so as to answer the intended effect; that is, that the transplanted tooth will not become as firm and as useful as the one which it has replaced, and last as long till destroyed by caries or accident. The reasons which I give in support of this opinion, are those already advanced, that the root of the tooth which is to replace the defective one, should be of the same *length, size and shape* of the root of the one which is to be replaced, and that the dentist is obliged to judge of that without seeing either. I therefore believe that there are a thousand chances to one, against the success of the operation of transplanting teeth from one mouth into another, if not entirely impracticable.

ON FILLING TEETH,

After the Pulp has Suppurated, or where it has been Destroyed with a View to this Operation. By SAM'L. RAMBO, M. D., of Montgomery, Alabama.

PROF. C. A. HARRIS, *Dear Sir*:

"Situating as I am," with a mixed practice from town and country, patients sometimes present themselves that *cannot* undergo the necessary medical treatment, laid down by authorities, preparatory to the operation of plugging. Many come from a distance, and, having no idea whatever of what is really necessary, insist on an operation being performed *immediately*, though a nerve may be exposed and suppurating, or an abscess already formed in the gum and alveoli.

Some, with teeth thus situated, *decline* extraction, from "certain states of constitutional health, and the fears of timidity of the patient," added to what they conceive to be the proper operation to be done. They are averse to extraction, or any mode of treatment that would require more than an hour, and plead distance, inconvenience, and what *they* "think about it." Science "goes to the wall," if the usual operation of plugging is performed, and an abscess, with its influences, *established*, as a "fixed fact."

I am sometimes consulted by patients who are threatened with alveolar abscess from the suppuration of the nerve-pulp, after the tooth has been filled, and when the crown is still strong, well-formed, and of good color. In such cases I sometimes think it advisable to attempt the preservation of the tooth, and more particularly where the patient is opposed to extraction, or a regular course of medical treatment of the nerve, as proposed by yourself, and Drs. Maynard and Baker.

Under these circumstances, I have a compromise operation, which

the above necessities have induced me to adopt, and although it may be known to many operators, yet it is comparatively new practice with me, not having performed it until within two or three years past.

The operation I propose, I think advisable, where a radical cure of abscess cannot be effected by excavating the fang, and the use of injections, or where there is any uncertainty in regard to the condition of the sac.

It is very difficult to insure a cure under the most favorable circumstances, and cases do occur where the aperture through the apex of the fang is so small, that injections cannot pass in quantity sufficient to produce the desired result.

I have no doubt but that the practice of filling the fang, is founded on correct views, when an abscess has never existed, and when the nerve and alveolar-dental-tissues have not suffered from the effects of arsenic, or other agents used for the destruction of the nerve within the root, and where a healthy cicatrix of the nerve has formed. If there is no inflammation or secretion, there can be no abscess, and I cannot imagine how the filling of a tooth in this condition, could produce it. But my practice applies to cases where there is danger of an abscess forming at the apex of the fangs, in teeth that have been filled, and have subsequently lost their vitality, or in cases of abscess from any other cause, where the periosteum of the root has been but little injured, where the patient refuses to have the nerve cavity treated, or where, from the nature of the case, delay is unnecessary.

The following is my plan of procedure, viz: The gum of the affected tooth may, or may not, be split, as circumstances may require, in order to pass a small drill under the edge of the gum into the nerve canal, directing the drill a little upward towards the apex of the root; when the nerve-cavity has been reached, introduce a small, flexible wire up to the apex, if possible; pressure should then be made over the region of the abscess, or swollen point, and the pus forced through the nerve-canal from the sac, and discharged through the drilled aperture under the edge of the gum. The old fillings, if any, should next be removed; the nerve-cavity freely opened, and the remains of the nerve, and discolored bone, if any, removed. The canal to the apex of the root, should be thoroughly cleansed, and injections used of water, and sol. nit. aegt., or other astringents, forcing them through into the sac, if possible. The external abscess should then be opened, and injections thrown in; after this treatment, the tooth is ready for the filling.

A piece of strong wire, the size of the drilled aperture, should now be

introduced through the same, far enough to prevent any gold foil from passing beyond it, and protruding a little ; it serves, also, as a point of resistance for the consolidation of the first portion of the plug. The plug is then finished in the usual way, and the wire, (which should be of gold,) withdrawn by plyers or other instruments.

After the operation, the pus that may form in the sac, finds a new channel of escape, and decreases in quantity, as the sac, from not being distended by accumulation, decreases in size ; the external abscess heals, the adjacent tissues become more consolidated and healthy, and future abscess avoided.

The gum, acting like a valve, allows the secretions to escape, but prevents the entrance of matter from without. Finally, the pus becomes almost imperceptible in quantity, from the contraction of the sac, and the tooth answers about as good a purpose as ordinary pivot teeth, but preferable, from the fact that the natural crown is preserved.

Have you any experience with this plan of treatment ? If so, I should be pleased to hear your views on the subject.

I am yours, very truly,

SAM'L RAMBO.

Montgomery Feb. 1st, 1850.

FIRST DENTITION.

We have long been of the opinion that many of the diseases of infancy and childhood, which nurses commonly attribute to "teething" have no necessary connection with that natural physiological process. The coincidence of profuse diarrhœa with the eruption of the milk teeth and of its cessation when the teeth have found their way through the gums is so frequent as to have induced the very general belief among physicians, as well as nurses, that it is caused by the irritation produced by the cutting of the teeth ; but may not most of the cases of diarrhœa and inflammatory diseases of the bowels be caused by improper food and clothing, or the sudden transitions from heat to cold, and other causes which produce a sudden check to perspiration ?

There is, to our mind, much good common sense in the following extract from a work published a few years since on the Diseases of Children, by J. M. Coley, M. D., an English physician.—*Ed. Recorder.*

"It is lamentable to notice the ignorance displayed by the profession as well as the public, on this subject ; every concomitant disease, the exact nature of which is not obvious to their apprehension, being attributed to the teeth.

"I may, however, observe that purging, which happens to concur with dentition, has no necessary connection with that process. I have already explained, under the head of 'Dentition,' the effect produced upon the alimentary canal by the growth and production of the primary teeth, which is the very opposite to that of excitement. When dentition happens to be proceeding with any remarkable activity, particularly in delicate children, the processes of digestion, chylication, and the peristaltic action of the bowels are interrupted in the same ratio, and the whole chylopoietic system rendered torpid. Hence instead of purging, we shall always find a state of constipation prevailing, together with inaction of the liver, until the deciduous teeth are unfolded, and the delicate animo-chemical process of depositing the enamel, which requires so much organic influence, has been completed. When, therefore, mucous, mucopurulent, or purulent diarrhœa occurs during dentition, it may always be traced to chronic inflammation in the mucous follicles of the villi, produced by cold, as will be explained in the next chapter. Another striking proof that diarrhœa, and other inflammatory diseases in the bowels of infants and children, under two years of age, do not proceed from the excitement of dentition, is the fact, that whenever such disease do occur, the process of dentition is interrupted as long as such diseases continue; as may be observed by the defective construction of the primary teeth, which happen to be forming at the time, and particularly the deposit of enamel, which, after remittent fever, severe diarrhœa, or marasmus, will be found as soon as the teeth have completely emerged from the gums by the subsequent growth of the fangs, disfigured with defects in the enamel consisting of its total absence in traverse patches corresponding in extent with the duration and severity of the contemporaneous intestinal disease. Notwithstanding these obvious facts, writers on the diseases of children, both British and Foreign, concur in laboring to prove the correctness of their mistaken views and inverted pathology, by contending that the mucous follicles during infancy undergo rapid development in the intestines, and that they supply the sudden and immense secretion of serous fluid occurring in diarrhœa, and thus act as a salutary check to the excitement of dentition. These pathologists, in their desire to blame the teeth for every disease appearing during the earlier periods of life, quite forget that inflammatory diarrhœa and dysentery attack individuals at all ages, even those who have shed their secondary as well as their primary teeth: and that in all the same disorganizations are discovered after death as those, which are met with in children, who happen to die before primary dentition is completed."

JULY, 1850.

LARGE GOLD FILLINGS.

We had an opportunity, a few weeks since, to examine several of the largest sized gold fillings, in the tooth of a late graduate of the Baltimore College, which were put in during the last lecture term by the students in that institution. The workmanship was admirable, two of the fillings, judging from external appearances, occupied at least two-thirds of the whole crown of the teeth and the surface of the gold was as solid and well polished as an eagle fresh from the mint. Surely, thought we, if this is a sample of *boy's* work it is time the *men* looked to their laurels.

The operation of inserting large gold fillings, and giving them that solidity and artistic finish which makes them ornamental as well as useful, has not received that attention and care to which it is entitled. There are no operations performed by the dentist which pay so well as these, for they give reputation, which is the foundation to fortune. Patients are often proud of small defects which have been relieved by elegant and high finished substitutes, thus we have often heard bald headed persons praising their barber while they exhibited a specimen of his workmanship on their own heads. So, too, when praising their dentist, they often throw back their heads and show beautiful gold fillings which are the best recommendations that they can give. A friend recently met with a travelling companion on the Mississippi, who had just had his teeth filled in the most beautiful manner by an eminent dentist in Tennessee, and so much pleased was he, that every morning in the common dressing-room, after a thorough cleansing, he exhibited them, by the help of his small mirror, to the passengers, while he spoke of his dentist in the highest terms of commendation.

The dentist who can fill ordinary sized cavities, on the adjoining edges of teeth, in a substantial and neat manner, will find no difficulty in doing the largest sized fillings equally well if he will but devote sufficient time, patience, and strength, to the effort. When filling small cavities the dentist uses a small pointed plugger from the necessity of the case, reserving his large pluggers for the large cavities, and the effect is that the small plugs are made so solid that the fine point used in packing the gold cannot be made to penetrate it; neither will the large point, with

which the gold is packed in the large cavities, penetrate them when the plug is finished, but take the small point and apply it to the large filling and there is no difficulty in piercing them in many places. Such plugs in a short time become rough and porous on the surface and gradually waste away, or, if on the grinding surface, are soon compressed by biting hard substances, into a rough uneven mass, filling but half the cavity. The difficulty with them is, the gold is not half packed, and the reason is that the instrument used was too large to condense it. Let a fine pointed plugger be selected for the largest sized fillings, and let the dentist use it with a strong hand until he cannot force it into the gold, then polish and burnish the surface, and, our word for it, it will stand and show no indentations or wearing away after years of service.

It is true that fillings of this kind cannot be put in for the price which is charged for ordinary gold fillings; but if the patient possesses a competency and knows the value of such work, he will be willing to recompense his dentist fairly and generously. Still there are some such who will not do it and others who have not the ability. We asked the young man, in whose mouth these large fillings were, how much he thought would be a fair price for a New York Dentist to charge for such gold fillings, and he replied that, for the largest, fifteen dollars would not be too much. What then, we asked, would those gentlemen who have such a holy horror of amalgam do with the teeth of the thousands of poor sewing girls, domestics and others who labor for much less than fifteen dollars a month, and whose teeth to them are as valuable as those of the richest in the land? His reply was not very satisfactory; but he said something about filling them with tin foil. If, however, such fillings are worth fifteen dollars a good tin one would be worth more than persons of the above description could well afford to pay, and the result would be that they would be suffered to decay until pain set in, and then they would be extracted.

Now gentlemen may oppose the use of amalgam as much as they please, and abuse those who use it with all the vehemence which they can master, but the time is rapidly coming when every dentist in the land will be compelled to use it in many of the largest sized cavities or abandon his profession. Already there are hundreds who have both gold and amalgam fillings in their mouths and who prefer the latter to the former, especially when the difference in labor and price is taken into estimation. To say nothing of the fifteen dollars—it is no small matter for a patient to sit half a day under the hands of the dentist, (for it often takes longer than this to put in the largest sized gold fillings, in the

thorough manner which we have indicated,) when the work may be done at a moderate price with amalgam in one quarter of the time.

We do not expect that the elder members of our profession, who have expressed their dislike to the amalgam in the most vehement manner and denounce those who use it as destitute of professional honesty, to change their course. As is usual in all reforms, they have served a useful purpose by exercising a conservative influence to prevent ignorant pretenders from the abuse of an article which, when judiciously used, is one of the best in the hands of the dentist. Their *pledges* and *protests* have served to awaken public opinion, and to stimulate enquiries into the relative merits of gold and amalgam, which, in many cases, have resulted in favor of the latter, and is rapidly dispelling the prejudice which for a time was created against it. As a substance with which to arrest the progress of caries in a tooth, it is our sincere conviction, founded on observation and experience during the last fifteen years, that there is nothing superior to a well prepared amalgam, still there is a charm about the real California which makes us prefer it to all other materials for filling teeth. There is a satisfaction in looking upon a neat and beautiful gold filling, preserving the health and color of the living tooth, and giving evidence of real artistic skill and merit in the operation which can never be felt while beholding the blackened surface the stained tooth bone, and the plaster or putty-like appearance of a mass of amalgam stuck into the cavity of a broken tooth. We prefer gold in our own mouth, we prefer to use it in the mouths of others, but truth constrains us to repeat that merely for the preservation of the teeth from decay, amalgam, in our opinion, is fully equal to it, and that it is our duty to give those who cannot pay for gold the benefit of it.

ATTACHMENT TO THE ALCOHOLIC BLOW PIPE.

We recently saw, in the shop of Mr. J. D. Chevalier, what struck us as an excellent modification of the Alcoholic Blow Pipe, which is now so generally used by dentists for soldering large pieces of artificial work. The lamp and boiler being constructed in the usual manner, to the latter is attached one end of an elastic hose, while to the other end is fastened a straight blow pipe. The work is to be held in the left hand while the right directs the flame upon it, the same as with the mouth blow pipe. The difficulty with the simple alcoholic blow pipe is to vary the flame so as to make it stronger or weaker, broad or pointed, but with this modification the dentist may obtain just the flame he wants for his use. By

placing the point of the pipe far into the blaze of the lamp, he gets a small, clear pointed flame, while if it is outside the flame, it blows the whole in a broad sheet of fire. Again it is varied by putting the point of the blow pipe near the top of the flame or at the bottom. This simple adjustment strikes us as bringing the flame of the alcoholic blow pipe under almost as perfect control as the mouth blow pipe.

NEW METHOD OF REFINING GOLD.

It is stated in the Scientific American that Mr. Richard S. McCulloch, Prof. of Natural Philosophy in Princeton College, and who formerly held the office of melter and refiner in the U. S. Mint, has discovered a new, quick and economical method of refining gold, whereby the work may be done in one half the time, with a saving of one half in labor and materials over the system now pursued in the mint of the United States. What this new system is, we have not yet learned. The discoverer is now taking means to procure a patent.

PREMIUM MINERAL TEETH.

We learn that Messrs. Jones, White & Co., have again been in luck and had awarded to them by the Pennsylvania Society of Dental Surgeons, a gold medal "for the *most improved artificial teeth*." But a short time since these gentlemen received the medal awarded by the Mississippi Valley Association of Dental Surgeons for the best mineral teeth. If, therefore, fair competition has been made, and no partiality shown by the awarding committees, which is reasonable to suppose, we are bound to infer that the teeth manufactured by these gentlemen are as good as any, if not the best offered for sale in the market.

We have used the above teeth, in connection with those made by other manufacturers, since they first commenced the business of manufacturing, and have had great reason on the whole to be pleased with them. We could wish that they would keep a more full and better assorted stock at their depot in New York, and believe that it would be for their own interest to do so. By the way, what has become of their lower molars which they used to make with the inner points longer than the outer, and those which they were *going to make*, (as suggested in the report of the committee on mineral teeth, made at the last annual meeting of the Society of Dental Surgeons of the State of New York,) with the bases formed in such manner as to fit the gold plate on the lower jaw without so much grinding?

NEW YORK DENTAL RECORDER.

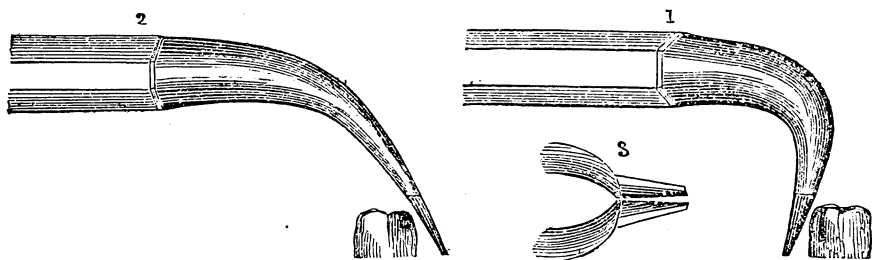
Devoted to the Theory and Practice of
SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.

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DIVIDING FORCEPS FOR MOLARS AND BICUSPEDS.



Dayton, Ohio, July 16th, 1850.

DR. ALLEN—*Dear Sir* :—While I was in New York I intended to have presented, for your consideration, a pattern of a set of dividing forceps for molar and bicusped teeth, which I had used for some time with considerable success ; but failed to do so from press of business. Subsequent experience has so strongly impressed me with their utility in separating the teeth, for which they were designed, that I take this means of laying them before the profession, hoping thereby to contribute to the ease and facility of performing these, hitherto, truly disagreeable operations, and obviate, or at least diminish, the necessity for those unpleasant nervous sensations attendant on the use of the file.

So indispensably necessary is it to success, in plugging these teeth, that they should be thoroughly separated, so that every part of the plug can be completely condensed, and the surface perfectly polished, that I have long sought an instrument that would accomplish it without the manifold objections to the use of the file. While I do not offer them as a substitute for that, in many cases, indispensable instrument, still, cases daily occur where they can be used with advantage, and I have the concurrence of my patients to their decided superiority to what they term the "horrid file."

The large amount of decay occurring on the lateral surfaces of these

teeth, the insidious and often masked attack of it, low down near the gum, when it cannot be easily detected, even by those who bestow the most care on their teeth, till it has made considerable progress, and the enamel, perhaps, has crushed in from the top, points to an instrument of this description with slender beaks, that can be easily introduced into the cavity to cut away the projecting sides. I flatter myself that the general use of an instrument that will easily separate these teeth will do away with the bad practice, so common to new beginners and itinerants, of cleaning and plugging these teeth without separating them; by stuffing the foil into the cavity between them, much as they would stuff a turkey; without the possibility of properly condensing it at the bottom and lower surface of the cavity, but leaving the rough edges of the foil to project from the cavity, and press, or infringe on the gum between the teeth, producing irritation, turgescence and destruction of periostial attachment to the neck of the tooth, and a favorable condition for a calcareous deposition—indeed, it is not uncommon to see two teeth with a cavity in the contiguous sides of each filled with a single plug; the foil occupying the interstice between them for the wise reason, assigned by the dentist, to prevent it from coming out.*

In anticipation of an objection that will readily occur to you, I will remark, that the jar attendant on their use is less than would at first be supposed, and is not greater than the strain from the wedging of the file, while with them the teeth are easily separated without straining or irritating the corners of the mouth, and without that peculiar grating noise so terrible to weak nerves, and the little use of the file necessary to complete the operation is easily borne. Other uses will often be suggested by their presence, such as separating the roots of teeth.

From the accompanying rough diagrams will be seen a profile view of the curvature of the beaks. No. 1 is designed to cut away the edge of a tooth when decay is on the front side of it, the cutting edge being consequently on the outside of the forceps. No. 2 is to remove the projecting corners of a tooth, the decay being on the back, the cutting

* In kindred good taste with this, is a practice of using natural teeth, which has been, and, I believe, is still occasionally resorted to here; by which the uninitiated are often startled, while looking into the mouth, to see them in various stages of decomposition, mounted on plate or pivot, chattering and telling strange tales of those dentists that profess to use none but the best porcelain teeth, and, at the same time, shaking to rid themselves from the thralldom of a strange mouth, and from being bound to a further term of service than nature designed them.

“Such things, I know, are neither rich nor rare,
But wonder how (in this age) the d—l they come there.”

edge necessarily being on the under edge of the forceps, and No. 3 is a view of the points and cutting edge of the beaks.

Respectfully, Yours,

WM. A. PEASE.

From the Dental News Letter.

TREATMENT OF DENTAL PULP PREPARATORY TO PLUGGING.---*Continued.*

BY J. D. WHITE, M. D., DENTIST.

Arsenious acid *is*, undoubtedly, the *destroying agent* in every form in which it can be used. A great many dentists are now using it, combined with morphia, and with success. I cannot understand why the preparations of morphia will not obtund, to some extent, sensibility in the pulp of a tooth. They are applied with that view, to other parts of the body,* and not without good effect. I know well that the sulphate of morphia, alone will suspend pain in the pulp, when it only arises from inflammation of that substance. I employ it constantly for that purpose, and sometimes combined with tannic acid; and always succeed in stopping the pain, even though it has been occasioned by the application of arsenious acid alone, if the external membranes are not much involved.

Arsenious Acid, Morphia, and Kreosote.—This is, perhaps, the best form of using arsenic that has yet been devised. I have not seen it spoken of by any authors. I have been using it thus since 1840 as a general substance for destroying the pulp, but I have tried arsenic in various other forms, as well as many other substances, before and since that period. There is no difference, in this form, in the rapidity with which it unites with the pulp, than when the kreosote only is properly combined with it; but the morphia will exert its narcotic influence, and lessen the pain; an effect which we do not often obtain with kreosote. The kreosote cannot be regarded in any other light than as a mere vehicle for the proper application of the arsenic.

R. Arsenious acid, . . . gr. xxx.

Morphia sulphas, . . . gr. xx.

Kreosote, q. s.

Misce.

Put the arsenious acid and kreosote in a glazed mortar, and grind until

* "They are applicable to all cases where the object is to relieve pain, or allay nervous irritation in any shape."—*U. S. Dispensatory.*

the arsenic becomes impalpable ; then add the sulph. of morphia, and continue the trituration for some time, with a view of completely incorporating both ingredients, and adding a little kreosote to keep the mass of about the consistency of thick cream. Prepared in this way, the arsenic is in a better condition to unite speedily with the pulp than the mere dry powder of arsenic, on account of the kreosote holding a large quantity of it in solution ; and it becomes more minutely subdivided when triturated in an oily substance than in the dry state.

Manner of Applying the Paste.—In the application of this paste, or in fact of any substance for the treatment of the pulp, great care should be taken to free the cavity of decay of all foreign substances, as well as the decay immediately over the pulp cavity, so as to be able to place the paste in immediate contact with the exposed pulp. This precaution should never be neglected ; because, if the pulp is inflamed at the time the application is made, the simple removal of the decay will excite bleeding, and relieve, or wholly stop, the pain ; indeed, it is very frequently that nothing more is required to cure a bad attack of toothache. And again ; if it be not inflamed at the time, the action of the destroying agent, will excite the determination of blood to the pulp, and by being thus congested in a shut cavity, and incapable of expanding or bleeding, will produce great pain, wholly independent of the escharotic agent ; while, on the other hand, the patient would only experience a gnawing sensation, or dumb pain. A pledget of cotton, about the size of a small pin's head, steeped in the paste, is sufficient. If the pulp bleed when the cavity is cleansed, we must wait until the bleeding subsides before we apply it, as it would dilute the preparation and diminish its action. The cavity may then be filled with cotton, and left to remain in from ten to sixteen hours. If it be in the case of a young patient, the bone will absorb a sufficient quantity of the arsenic to inflame the alveolo-dental membranes ; and of course it should be removed, in such cases, in a shorter time than it could be left with safety in the case of an older patient, or a dense and opaque tooth.

I sometimes place a layer of tin foil over the paste after it is introduced, with a view of preventing it from being absorbed by the cotton, especially if it be between two teeth, both of which are decayed and it is not desirable to destroy the pulp in both. We have seen cases, where substances have been placed in one tooth to destroy the pulp, while the adjacent tooth was not decayed to the nerve ; and the cotton absorbing the poison, it would pass over to the adjacent tooth, and permeate

the thin stratum of bone protecting the pulp, and either inflame or destroy it, and give both patient and operator great trouble.

Softened beeswax and pastes of various kinds are objectionable, because they will not allow the air to escape from the cavity while packing them in, and therefore, by forcing a column of air against the pulp, it induces pain. Where the cavity cannot be sufficiently well shaped to allow of the secure package of the cotton, or where there is no adjacent tooth to support it, as on the labial surfaces of the teeth for instance, I am in the habit of placing a roll of cotton over the cavity, and then throwing a ligature around the tooth to secure it.

An escharotic ought never to be applied in the after part of the day, or at night, to destroy the dental pulp, and especially in patients of a high nervo-sanguine temperament; because teeth are more liable to pain at night, from the increase of the nervous susceptibilities and the febrile exacerbation and determination of blood to the head and face that all are more or less liable to as night approaches. I very frequently narcotize the pulp, by applying morphia for a day or two before the application of the paste, if we fear its giving pain, and apply the escharotic in the morning. By this method, the most happy results have been produced in the treatment of the most nervous patients. Some of the reasons why I prefer using the arsenious paste are, 1st. It destroys the vitality of the pulp in a shorter time and with less severe pain than in any other form in which I have used it. 2d. It less frequently causes inflammation of the external membranes than when applied alone, from the well-known principle that the more speedily it unites with and produces the death of a part, the less extensively will it be absorbed; and, 3d. It produces a more extensive and perfect slough of the pulp, and of course favors its removal more effectually from the roots without pain. It is upon this latter effect that the preservation of the tooth mainly depends; and it would seem that dentists have pretty generally overlooked this necessity, under a false idea that the tooth is thereby rendered inevitably a foreign body, and consequently becomes itself a cause of exciting inflammation. I consider the actual cautery as preferable for removing the pulp, where it can be applied to the use of acids, and often use it in treating the pulp, preparatory to setting pivot teeth.

Manner of Removing the Pulp.—After the paste has been in, the allotted time, see the patient, and remove it. Then, with a small pointed instrument, wound the pulp to excite bleeding, to relieve the tension of the blood-vessels of the apex of the fang, and prevent the pain that

would otherwise be produced by enlarging the orifice leading from the cavity of decay to the pulp cavity. Now open the orifice of the internal cavity well, quite as large as the largest part of the pulp cavity ; then, with an annealed wire fitted into an ordinary drillstock for the purpose, and bent to suit, and *barbed* with a sharp knife, so that when it is passed into the canal alongside of the pulp, this sharp, jagged instrument will lay hold of the mass of the pulp, and with a sudden jerk very probably the whole pulp will be extracted, or at least it will break off at the line of demarcation between the living and dead parts. If this barbed instrument be as pointed as possible, it will pierce the pulp or pass along the canal to any desirable extent, without pushing the pulp or the contents of the canal of the root, before it ; and again, if the sharp teeth lay backwards, or towards the shaft of the instrument, they will not produce much obstruction in entering, but on withdrawing the instrument they will inevitably bring with it the contents of the canal or cavity. If this instrument be filed to a flat square, and the edges barbed, they will be sharper than if the teeth were cut on a round or flat surface. To pass deep into the root through a winding cavity, where a steel instrument cannot well be used, a common quill of hard texture, prepared like the steel instrument, will be useful, as it is more flexible. We use the quill entirely for mopping out the root, in washing away the blood, and putting any substance deep into the root. I do not often apply the paste a second time, especially if the pulp is destroyed to a considerable extent by the first application, but apply a small quantity of *caustic potash* or *chloride of zinc*, as either of these substances will produce a speedy slough, in this condition of the pulp, without pain, whilst if either be applied to the pulp in a healthy state, they will excite intense pain, and not destroy the pulp for any depth. I also use *burnt alum*, *tannic acid*, or *nitrate of silver*, in solution, or in the stick, as the circumstances of the case and the locality of the tooth would allow ; as, for instance, it would be improper to use nitrate of silver in a front tooth, as it would, without great care, discolor it. Sometimes, if all the pulp cannot be taken away, by waiting a few days, the balance will slough, and it can be removed with facility. It is yet a question with me whether the pulp should be removed to the very apex of the root, or only within a short distance of it. We know well that the only evil of removing the pulp is the wounding or communicating inflammation to the external membranes, and it seems to me that if we remove the pulp to the end of the root, and there is any irritability in the constitution against us, it must act upon the external membranes at once ; and that approaching

so close to the apex, we cannot avoid exciting some irritation, whilst if we leave a small portion of the blood-vessels remain, say an eighth or quarter of an inch, as the canal in the root is wide or narrow, as a kind of neutral ground to work on, in this way we would not be coming close enough to the external membranes to produce irritation, and there would not be sufficient of the fragments remaining to do harm. Neither do I see why we could not get rid of so small an amount by absorption, as the external membranes could do without it, in the same way as we get rid of the small shreds of blood-vessels elsewhere under similar circumstances. Although, in removing several nerves in the same mouth, I have had trouble with those that have been partially removed, and not with those that had been entirely, and vice versa; still I give the preference to leaving some neutral ground. Yet I do not leave sufficient to invite an afflux of blood to the parts, or any part that can be taken away with the smallest flexible probe.

Plugging the canal of the root or nerve cavity.—I do not think it prudent to plug the root as soon as the nerve is removed, on account of the bleeding; that generally follows, even though there be no bleeding; because it is evident that the blood that returned through the pulp must now return by anastomosing vessels, and which will give more or less turgescence to the blood-vessels of the root, and become augmented by the pressure of plugging. It is therefore important to wait for several days, as the case may be; in the meantime see the patient, in order to remove the clot of blood that forms in the cavity until the bleeding ceases; and then at last, fill the whole root with a tent of cotton imbued with alum-water, for a day or two, upon the withdrawal of which, if there be no bleeding, the root may be filled with gold. I *never* use tin in the root of a tooth: some I fill in three days, and some in two weeks, depending upon the condition of the external membranes. I take a piece of gold leaf, cut it triangular, (No 6 will do, but 15 is better,) and beginning at one corner, roll it into a pointed roll, and as hard as possible; this will make a flexible gold wire which can be passed, if necessary to the apex of the root. If it be too pointed or sharp, cut it off with the scissors at such point as to be thick enough to choke the cavity before it gets to the fragments of remaining blood vessels, or going through the foramen at the apex of the root, for it would in either case bring on inflammation. Then follow this with a small annealed plugger, having a great number to fit different localities, of higher or lower temper, as may be desired, the larger ones to go far into the root, to be fitted extemporaneously, and used until a harder and stronger one will

apply, making still greater and greater pressure as we near the neck of the tooth, when a very strong instrument must be used, as the plug at this point must be very hard, to prevent the tooth from becoming discolored, it ought to be hard to the end of the root; but I know of no way of getting an instrument in, strong enough to make it very hard in some cases. Now the first of these pluggers must be rather soft; still, not as soft as steel can be, and rubbed with a burnisher towards their points, as that process will lay a kind of burr towards the points, and when used will carry the gold in, and not withdraw it on removing the instrument. It will also harden those sufficiently that are to be used first, without plunging them into water. When the root of the tooth is filled level with the floor of the cavity of decay, I am in the habit of burnishing the surface of the plug, to shut off the possibility of dampness escaping into the external plug. It is obvious that if the natural cavity of the tooth be firmly plugged with gold, the tooth will be in a better state of preservation than if the cavity be open or plugged with any other substance, as it will effectually prevent the dampness, pus, air, &c., from acting on the walls of the cavity. I need not say what nastiness gets into that cavity, as once cleaning it out when the tooth is in a diseased condition will explain it much better than I can. Again, as the tubuli of the body of the tooth radiate from the pulp cavity to its periphery, an impervious plug will shut off the discoloration so much complained of when the pulp is destroyed, as all that so much-dreaded "blueness," "purple," &c., is from infiltration of the tooth by the contents of the pulp cavity. In this way, the whole body and root is saturated by the morbid fluids bathing that cavity, until the whole tooth is dead. I never think of a tooth becoming discolored, if my patient will give it as much attention as I propose to give. It therefore never happens, except by carelessness on my part, my patients', or imperfect operations.

I copy the following from my Thesis paper, written in the winter of 1843--44. It may not be uninteresting to give a list of cases which I kept during April and May of 1842. In one hundred successive cases, the pulps were destroyed in eighty-four without pain; the remaining number, sixteen, gave pain, the average duration of which was one hour. The pain was most severe, and of greatest duration, in patients of a strong nervo-sanguine temperament; but even in those cases, if the pulp had been subject to frequent attacks of inflammation, it rarely gave pain when the paste was applied. Again, patients of scrofulous diathesis rarely suffered pain, whether the pulp had been previously subject to

inflammation or not. I have extracted six of the above one hundred cases since the spring of 1842, for alveolar abscess, (time about twenty-two months,) but I was not able to trace the whole number any further to obtain the ratio. Some, however, are still good, (1850,) and those that have been lost had not been plugged well in the roots. I never could succeed in saving teeth satisfactorily by plugging over the nerves, either by "caps," made according to special patterns, or methods of plugging, or interposition of non-conductors or non-irritating substances such as *asbestos*, *charcoal*, *cotton*, etc., etc. I have kept a diary of cases, which will be useful to refer to, as well for my own practice as for others. The last special list was kept during October and November, 1849, of seventy cases that had been plugged over the nerves, and numbers of them by some of the most careful operators in Philadelphia, as well as in neighboring cities; none of them have been extracted up to this time, after filling in the roots, to my knowledge. Nearly all of those cases were giving pain at the same time, and some of them had gone on to alveolar abscess, and were in a very unhealthy state. But this would lead to the consideration of alveolar abscess, which was not contemplated in the limits of these papers, which if time can be spared and health permit, I will take up at some future period.

I cannot close without acknowledging myself under the deepest sense of gratitude to the proprietors of the "Dental News Letter" and those other valuable journals that have done me the honor of publishing the above hastily written papers. Though hastily written, they are not hasty conclusions, as I have given them the most deliberate reflection and experiment, and their strict observance lead me daily to the most happy results. My humble exertions have been, and ever shall be, to arrive at the best and most truthful methods of alleviating human suffering, and I would earnestly and respectfully solicit every fellow-laborer in our useful avocation to aid in the elucidation of this intricate subject. He who corrects most of my errors, and teaches me most, does me more service and honor than he who adopts and applauds the result of my labors.

THE DUBBS AND CHEVALIER CONTROVERSY.

It is but common justice to give credit for inventions and improvements, in any art, where credit is due; by so doing we may hope that those who make the improvements will freely give them to the whole profession, and rely upon the honor and accession to business which it

produces as a sufficient reward. We know of no way but this to break up the selfish custom of patenting every trifling thing which is new, or which, through ignorance of what has been accomplished, the inventor may *think* is new. It is notorious, however, that many dentists have patented trifling improvements that they might have something to advertise, and thereby bring their names before the public as possessing something of great value in their practice, of which they have the exclusive use. This is an unfair and dishonorable method of getting the advantage of their professional brethren, and should be so considered.

Our only object in noticing Dr. Dubbs' screw forceps, was to ascertain who was the original inventor of the notches and catch attached to the screw. That Dr. Hulihan was the first to combine the screw and forceps, we never doubted. The fact that Southern papers, (as we supposed from Dr. Dubbs' representations,) gave the credit of this invention to him, led us to distrust his claim to any invention. In order to establish his claim he has forwarded to us the following affidavits for publication :

Jefferson Co., Mis., August 30, 1849.

DR. CHARLES H. DUBBS,

SIR—In answer to your inquiry as to my recollection of the time of your first conversation with me on the subject of inventing your screw forceps with a catch and notches, so as to combine the action of the screw and forceps, to the best of my recollection, occurred in the fall of 1842, and some time in the year 1843, I think in March, you told me you had commenced making them, or had them completed, and in the fall of '43, or spring of '44, you were at my house and offered to extract roots of teeth for my wife and assured her that operating with your screw forceps would give but little pain.

Yours, with respect,

HARRIS HILL.

STATE OF MISSISSIPPI, }
ADAMS COUNTY. }

Before me, Robert W. Wood, a Justice of the peace in, and for said County, personally appeared Harris Hill and made oath that the statement contained in the annexed letter, written by this deponent to Doctor Charles H. Dubbs, of Natches, Miss., is correct and true ; and deponent further states, that some time during the year 1846 the said Charles H. Dubbs showed to this deponent, his last improvement to the instrument described in the annexed letter, with a thumb piece and catch attached to the tube to act upon the notches on

the shaft of the screw, so as to combine the power of the screw and forceps.

Sworn to and subscribed
before me this July 4th, 1850, }

JAMES W. WOOD.

Natches, January 8th., 1850.

DR. C. H. DUBBS,

DEAR SIR—You request me to say what time did you exhibit to me your instrument (with catch and crotches in the shaft of the screw so as to secure the screw firmly in connection with the forceps). In answer I will say that you exhibited it to me at my residence in Natches, in October or November of the year 1846.

Respectfully, yours,

SAMUEL W. SPEER.

This letter is also sworn to, before the same Justice of the peace, and both contain the certificate of Richard A. Inge, Clerk of the Probate Court, to the fact of Robert W. Wood being a Justice of the peace, duly qualified, &c.

Thus much for Dr. Dubbs' claim to priority of invention, which certainly goes back anterior to that of Mr. Chevalier, and is established by affidavit which is as strong as any testimony can be without giving the opposite party an opportunity for cross-examination.

In order to close this controversy, which has already occupied too much space in the columns of the Recorder, we showed the above to Mr. J. D. Chevalier, and asked him what he had to say why sentence should not be pronounced against him, to which he made the following answer:

DR. ALLEN,

DEAR SIR—Having decided to close your columns to a controversy which, at its commencement, I condemned as unprofitable, and having shown me the affidavits sent by Dr. Dubbs, I wish only to say to your readers—

1st. That affidavits are not evidence, they are merely statements which are frequently upset on a cross-examination, and no more credence can be accorded to them than to the assertions of gentlemen without the oath. In the present instance how easy a thing it would be for these gentlemen to be mistaken, either in the date, or the instrument; they may have seen Hulihan's forceps (procured from me in July, 1846,) at the time sworn to, and afterwards seeing the improved one may have thought it the same.

2d. I would call the attention of those who have taken an interest in this controversy to the various articles which have been published in behalf of Dr. Dubbs, in the Natches Courier and Vidalia Intelligencer, (re-published in the American Journal, January 1850, and Dental Recorder,) and, after a careful perusal, reflect on their consistency. He first claims the invention of the whole instrument, but being headed off there, he falls back on a twopenny improvement, which really is not worth half the ink spent upon the subject—any thing to give him an opportunity to puff himself into notice in Natches.

3d. Relying upon my ability to prove, *when called upon to do so*, that my improvement of Hulihan's screw forceps is of an earlier date than that of Dr. Dubbs I shall not offer any counter affidavits, but simply restate my reasons for the above opinion.

1st. July 8th, 1846, Dr. Dubbs ordered from me a pair of Hulihan's forceps. 2d. February 4th, 1847, Dr. Dubbs writes me for "one extra screw for the Hulihan forceps you sent me. I find by adding a small spiral spring under the screw is of much advantage." 3d. June 18, 1847, Dubbs orders from me "one pair of forceps like those of the screw forceps with the *exception* of the tube and screw," (I give the extracts from his letters verbatim). 4th. Now what did Dr. Dubbs want to do with this old-fashioned "extra screw" in 1847, if he had his patent one in 1846, as sworn to in the above affidavits?

5th. Dr. Dubbs did not procure his patent until October 17th, 1848, although he states that he filed a caveat in the patent office "some sixteen months previous," the exact date, however, of this caveat, if he filed one, is studiously concealed in all his communications, but from a circular issued from the Patent Office, dated August 16th, 1847, signed Edmund Burke, Commissioner of Patents, and stating to Dr. Dubbs that his application for letters patent for a Dentists' Forceps would probably be examined in about five months, we suspect that this was the first step taken at Washington towards procuring a patent. But as I had been making and selling them for some months at that time, I beg leave respectfully to say to Dr. Dubbs, and the readers of the Recorder, that I shall continue to do so until restrained from so doing by due course of law.

Respectfully, yours,

J. D. CHEVALIER.

Our readers will now see how the whole matter stands. They are as capable of judging who is the inventor of the spring and catches, as applied to Hulihan's forceps, as we are, and we trust they and the claimants will excuse us from further noticing this subject.—*Ed. Recorder.*

From the Dental News Letter.

REPORT OF COMMITTEE ON DR. EVANS' AMALGAM.

*To the President and Members of the Penn- }
sylvania Association of Surgeon Dentists. }*

GENTLEMEN—Your committee, appointed at the stated meeting held on 6th February, 1849, and to which was referred Dr. T. W. Evans' Amalgam, respectfully beg leave to report, that they have attended to that duty, and submit the following conclusions, to which they have arrived, viz :

1st. As to the general question of the use of amalgam, and other compounds of the baser metals and pastes, as a filling for teeth, your committee would not wish to be comprehended as restricting any member of the profession in their occasional use, as directed by the exercise of their deliberate judgment ; but as a general substance for filling, would condemn it, and would in any case recommend the observance of great caution. Notwithstanding the violent and much to be deplored dissensions which have existed for the last few years among the most eminent in the whole domain of the profession, still, the subject of these preparations for fillings has received the closest scrutiny, and the most extensive and multiplied experiment, and sufficiently careful to have settled, beyond the question of controversy, the impropriety of uniting any two kinds of metals whatever in the same filling, or the same tooth. Those dissensions have had their beneficial influence, however, in a two-fold light—first, that of directing the most careful inquiry into a subject of the greatest magnitude to the profession ; and secondly, by the publication, through the journals of the country, of the separate views of the different observers, have also contributed to enlighten the reading public. And as far as your committee are able to judge, the most intelligent class of the community receive with suspicion any compounded material for filling teeth, and mostly refuse, positively, to submit to its employment. Although your committee were appointed to consider the subject of Evans' Amalgam only, still, as it is so identical with most others that have been, and are still in use, except that it contains *cadmium*, they consider it a fitting occasion to remark upon amalgams and compounds as a general subject, and express their convictions, with a view of settling the matter, as far as those substances are concerned, at once ; and moreover, as the most objectionable and important ingredient in it is also contained in most others, viz. *mercury*. Now, as to the deleterious influence of mercury on some constitutions, there remains no longer a

doubt, even though received into the system by the slow process of the decomposition of a plug or a number of plugs in the teeth of a patient. In fact, cases are constantly coming to light, through the most respectable sources, sustaining this conclusion, and as Evans' Amalgam as well as all others, are destroyed by the action of the acidulated secretions of the mouth in some or most patients, it loses its value as a safe material for filling teeth. Yet your committee are aware that some patients do not present the appearance of suffering from its use; still the operator cannot know, by any external or other signs, in which or what kind of constitution or temperament, it may with safety be employed.

2dly. With regard to the merits of Evan's Amalgam. Your committee have been anticipated by the author, in a communication to the proprietors of the "Dental News Letter," under date Paris, Dec. 11. 1849, in which he holds the following language:—"Finding it to differ so much in different cases, I am induced to regard it as at best an uncertain article. I do not feel satisfied to use it, even as an expedient, under such circumstances; having no confidence myself in its durability, I do not feel justified in recommending its use to the profession." Notwithstanding this renouncement by the author, he makes use of the following commendatory language in a communication to the proprietors of the journal named above, under date London, April 20, 1849:—"The first in the profession in London, have pronounced it the very best ever invented. Finding this, I cannot feel myself justified in withholding it from the profession. I propose publishing it freely. I have never had any thing belonging to dental science that I wished to conceal, and this being an article intended to benefit humanity, I therefore wish every one to be the possessor of it. I think it must supplant the many substances which are used, most of which I cannot but feel are very deleterious; this, I *know*, is not." He further adds a series of reasons why it is superior to any heretofore in use, and claims for it a number of special merits, among which the subjoined are the most important. 1st. "There is in it no ingredient that can possibly render it improper to be employed in the most delicate constitution; it is perfectly harmless, both as it respects the general health and the teeth themselves." 2dly. "Almost *immediately* after introduction into the cavity, it becomes hard, and as it hardens, it *expands*." 3dly. "A cavity filled with this compound is altogether impermeable to the fluids of the mouth, and strong tests have proved its perfect insolubility," and, 4thly, "The most delicate comparison of the weight of the filling at the time of insertion, with its weight

after having been in the mouth, proves that it undergoes no change whatever in this respect."

Now, with regard to the first and important merit claimed for it, your committee would dissent in the strongest terms, and it is the first time your committee have heard any one claiming that mercury is not "improper to be employed in the most delicate constitutions, as respects the general health or the teeth themselves."

The citation of the following case will fully illustrate many of its characteristics as a useless substance, and explain nearly all points of objection to it: a lady of twenty-five years of age, high nervo-sanguine temperament, in general good health, teeth much disposed to decay, highly sensitive, and would not hold plugs well, had the second right superior molar plugged on the back part and palatine surface—the plug supplying about two-thirds of the whole substance of the tooth; the nerve was dead in the tooth, and it had been plugged for some time with tin or gold, and answered the purpose of attachment of a partial set of artificial teeth for a long time; it never had been sore in the gum. It was filled with great care, and was understood by the patient as an experiment with a new and highly extolled amalgam. Upon putting the tongue to it there was a very strange sensation—a peculiar, pungent and cold sensation—which was very much increased on putting the band on the tooth. This became a source of considerable annoyance for some weeks, when it diminished by degrees, leaving the tooth sore in the gum, somewhat loose, and with pain and uneasiness all the time; finally in about three months, the plug commenced crumbling out, and the first sensations passed off—that of cold pungency. The balance of the plug was removed, and presented the appearance of gray ashes, the mercury had been entirely absorbed. There is not the least doubt but that the secretions of the mouth operated to dissolve this plug very rapidly. The adjacent teeth, as well as the plugged one, were quite yellow. The same tooth was plugged with tin in a few days, with a great deal of labor, when none of these symptoms were experienced, the spunginess of the gums left, and the tooth is firm. Three cases out of four terminated in this way.* On the other hand, a gentleman fifty years of age, of general good health and good constitution, had the back part of the second inferior molar (nerve dead) plugged, and it comes in partial

*. A young lady, twenty-five years of age, general good health, nervo-bilious temperament, teeth generally good, and hold plugs well. Inferior left second molar, large plug, nerve not destroyed, been plugged about one year, has never given any unpleasant symptoms, does not wear any, but is not used in masticating; gives satisfaction.

contact with the food in chewing, does not produce any unpleasant symptoms, but is not as good as gold or tin in the same place, as it wears away very fast. They have all complained of a cold sensation about the teeth plugged with it. Now, under such circumstances, all its "peculiar merits," as to "impermeability," its harmlessness in the most "delicate constitutions," maintaining its specific gravity, etc., etc., fall, with the plugs, *to pieces*. And all that is left for the committee to say is, to compliment the generous and liberal feeling which stimulated the inventor to lay it freely before the public. If all were to appreciate the lesson this substance and the inventor's course affords them, there would be many more good things in use, and many more bad ones out of use.

All of which is respectfully submitted.

Resolved, That while your committee do not wish to restrict any member of the profession in the use of amalgam, as a temporary filling, knowing that a discerning public will govern him in that respect, as regards its use, to the exclusion of gold,—more than all the laws and resolutions a society could adopt; still, they would recommend the entire abandonment of it as a safe and permanent filling for teeth.

F. REINSTEIN,	} Committee.
C. C. WILLIAMS,	
W. R. WHITE,	
S. L. MINTZER,	
A. R. JOHNSON,	

Remarks upon the Above.

We are pleased in the main with the spirit and views of the committee embodied in the above report. They have steered clear of the sands on which the American Society was wrecked in 1845, where she has since laid, neglected by her friends and despised by her enemies, a solemn beacon and warning to all other societies not to attempt by coercion to control individual opinion or practice. While the committee would allow the most perfect liberty to members, to select what materials they please for filling teeth, they recommend great caution in the use of amalgam, and condemn it as a general substance. This is all very well but very unnecessary for no one worthy to be considered a judicious operator has ever, to our knowledge, used or recommended it as a general substance for filling teeth. The committee are willing to allow members of the profession the occasional use of compounds of the baser metals for filling teeth "as directed by the exercise of their deliberate judgment." Now if such occasional use of the amalgam is to be allowed it strikes us that the committee would have done well to have point-

ed out the cases in which it was most useful and those in which it would prove most deleterious ; but this would have been to endorse the use of amalgam which the dentists in Philadelphia are not yet quite prepared to do. They are still under the influence of the elder members of the profession who seldom receive new things ; but by the time they have seen as much of amalgam filling as we have, here in New York, and been abused and insulted by the *wise heads* as we have been, (which latter we hope may never be,) we believe they will think better of the former and perhaps less of the latter.

We must beg leave to differ with the committee where they assert that " the most intelligent class of the community receive with suspicion any compounded material for filling teeth, and mostly refuse, positively, to submit to its employment." In our practice the facts have been entirely different. The most intelligent know most of the virtues of amalgam for filling teeth, and often insist upon its being put into their teeth. When we gave up the use of amalgam, during a period of about two years, several of our best patients went to other dentists to have it put in their teeth. An excellent dentist since told us that he must either resign his membership in the American Society and go to using amalgam or lose all his practice, and we know that patients have left those who do not use it and gone to those who do, and that they have left for no other reason. Notwithstanding all the clamor against its use by those who aspire to be the leaders in our profession, and notwithstanding the insulting and libellous circular published by Dr. E. Parmly and his clique in which they deny the *honesty* of those who use it, still the demand for amalgam fillings among the intelligent classes of the community has been constantly on the increase. Such is the universal testimony of all who use it.

The cases cited by the committee to show the worthlessness of Evans' amalgam, it seems to us, are hardly fair. We all know that no dependance can be placed on dead teeth when filled, yet out of two cases of this kind, described in the report, one was successful, while another contained in the note in which the nerve was still alive had given satisfaction for about one year. Three cases out of four, the committee state, terminated unsuccessfully ; but they do not state whether the nerves were dead or not. From the fact that they terminated like the one described (in which the nerve was dead,) we conclude that they were all dead teeth, and if so it is not strange that they should become sore in the gum, loose, and give more or less pain.

We do not by any means think that Evans' amalgam, which the com-

mittee more particularly examined, is to be compared with that of silver and tin, and we regret that they did not see fit to examine both, and institute a comparison between them, but considering the prejudice which exists in Philadelphia against the use of amalgam we think the committee has done well, and we commend them for the indirect censure which they and the whole society have cast upon the American Society of Dental Surgeons for attempting (though the attempt has been a most signal failure) to restrict its members in the free use of their reason and conscience, upon all matters pertaining to their practice as dental surgeons. This is a good beginning, and we trust that the next time the subject comes up in the Pennsylvania Society they will not shrink from telling the whole truth and placing amalgam exactly where it ought to be placed among the articles used for filling teeth.—*Ed. Recorder.*

MINERAL TEETH.

FRIEND ALLEN.—As fluctuating fortune has again brought me into contact with the useful profession which sustains your journal, and as I regard it now as I ever did, in years gone by, as much my duty as it is yours, to make myself useful to mankind in whatever calling I am engaged, I ask the favor of saying a few things to my professional brethren in the free and liberal pages of the *Dental Recorder*, concerning artificial substitutes for human teeth.

I hold it as self evident that the degree of excellence to which this branch of American manufacture has been already raised, and to which it may still be advanced by proper effort, has a decided bearing on the character, success and utility of the Dental Art. When I reflect on the recent condition of this manufacture, as exhibited in the *split beans* of the French and English tooth market twenty years ago, and when I recall the extremities to which dentists were reduced in the first quarter of the present century, in robbing charnal houses, exhuming the dead on the battle field, and cutting mandibles out of bones and tusks, and compare their situation then with their advantages now, I am compelled to recognize the march of a mighty improvement.

Relying upon the glory of early achievements, the earliest manufacturer of this elegant article, has trusted to the gratitude and good nature of the members of the profession, that they would buy his wares and be thankful for the privilege, without asking for any further improvements. And grateful indeed have they showed themselves;—but the spirit of the age is onward and upward, and the dental art must make

progress with the rest. There is still room for advancement, and if it were not for this fact, I should feel myself very little inclined to resume the position, which I have long held, as corresponding and furnishing agent for dentists throughout the world. And when I say, "throughout the world," I am using no hyperbole, nor employing any terms for the sake of magniloquent display; for only a few days ago, I filled an order from the very *antipodes*, forwarded by a dental practitioner of New South Wales. Such and so notorious is the early inventor and improver of the American Mineral Teeth. Yet, widely extended as is his reputation as an unsurpassed manufacturer, I should not have consented to become his metropolitan agent, and thus the servant of the whole profession, unless I had received assurances strongly guaranteed that future improvement was his watchword. It is his interest as well as that of the other manufacturers of mineral teeth, and also greatly for the interest of the dental profession at large, that these artificial substitutes should be so perfected and improved as to leave nothing to be desired by either those who insert or those who wear them.

These progressive improvements must necessarily embrace four essential particulars, viz : *shape* or form, *shade* or color, *texture*, and *variety*. If either of these be wanting, the dentist suffers first and then his patient; and when both these suffer, the manufacturer suffers with them—for the public will wear artificial mandibles only in proportion as they resemble nature, and perform the uses designed.

It has been practically demonstrated that dentists in general will never become manufacturers of their own teeth to any considerable extent. The reason is, that on a small scale, this species of manufacture will never pay expenses either of time or outlay. It is only by making them in large quantities and by means of labor less valuable than that of a respectable dentist, aided by heavy capital, that the business can be made productive. It will therefore remain in the hands of large operators, like all other business of the present day, requiring large capital.

Under these impressions I have consented to take my position between the profession and the manufacturer, in the hope of being useful to both as well as to myself; and I intend to make myself practically useful, as the only sure means of securing prosperity and that self-respect without which no earthly prosperity can be a blessing.

Does any inquire *how* I intend to make myself thus useful to all parties concerned in this article of manufacture? I reply; by learning carefully the actual wants of the dental profession, and then laboring sedulously to induce the manufacturer for whom I sell, to meet those

wants as far and as fast as the nature of the case admits. As I have said, I shall urge him with all reasonable importunity to stand so far out of his own sunshine, as to suffer no delay in improving the forms, the shades, the texture and the variety of his mineral teeth of all descriptions.

That Mr. Stockton is now doing this, with laudable alacrity and zeal, I have good reason to know, and a good opportunity of making known to the profession at large in all countries. Although I have been only three months in the business since my return to the city, I have already dealt with three of the four quarters of the globe.

Very respectfully,

SOLYMAN BROWN.

251 Broadway, New York.

TO DELINQUENT SUBSCRIBERS.

Those of our subscribers who are in arrears for the Dental Recorder will confer a favor by remitting the amount to the editor at 28 Warren street. Finding from long experience that "short settlements make long friends," we determined not to continue the Recorder to any subscriber who was in arrears for the past volume, but to make No. 12 a receipt for each volume, by retaining it until the amount due had been received. No one can reasonably find fault with this rule, as under it the proprietor credits his subscribers for eleven-twelfths of each volume while he only trusts the publisher for one-twelfth.

To those subscribers who have promptly remitted the amount of their subscriptions, while we return to them our thanks for their continued support and patronage, we would also say that we have not been in the habit of sending back receipts for the money, but those who reside out of the city and to whom the Recorder is mailed will please accept of number twelve, with title page and index, as a receipt for the volume, as it will not be mailed to those who shall be delinquent when it is published.

MEETING OF THE NEW YORK SOCIETY.

The Society of Dental Surgeons of the State of New York will be holden on the second Tuesday in September, at its rooms No. 609 Broadway at which the profession generally are invited to be present.

The American Society of Dental Surgeons meet on the second Tuesday of August at Saratoga and we trust that for the honor of the Society they will undo some of the mischief which has been done in former years and learn wisdom from experience.

AUGUST, 1850.

ATMOSPHERIC PRESSURE AS APPLIED TO DENTISTRY.

No subject connected with the practice of the dental profession has elicited more thought or commanded more experiment and attentive research, during the past few years, than that of inserting artificial teeth on the principle of atmospheric pressure. We cannot at present state who first recognized this principle as the sustaining power to hold an upper set of teeth in its place. The probability is, that it was first discovered by the breaking of springs and the patient finding that he could wear the teeth without them.

For many years the only form used was that of a plain plate, narrow, and covering only the alveolar process. This was afterward greatly improved by enlarging the plates so as to cover the whole of the hard palate, the principle being, that the pressure is in proportion to the size of the surface upon which the pressure is made. These plates, when well fitted, answer admirably and, in most cases, will sustain an upper set of teeth sufficiently firm for all practical purposes. Many still use them in preference to plates with cavities in them, which have been since introduced. There is no doubt but what they are less liable to produce irritation and fungous growth of the gums, and, inasmuch as they press equally over the whole surface of the gums and hard palate, are pleasanter to wear than plates with cavities in them.

The next improvement which we heard of was that of Mr. A. Riggs, of this city for which he obtained a patent. This consisted of two plates covering the entire alveolar process and soldered securely together so as to constitute an air tight chamber between the two from a sixteenth to an eighth of an inch in depth. The upper plate was pierced with holes from which the air in the chamber was exhausted causing the whole to adhere to the gums, as was thought by the inventor, with much more firmness than by a plain plate.

Many persons supposed that this kind of plate would be pressed against the gums with a force proportioned to the size of the cavity from which the air was exhausted, but this is a mistake. If there is any more pressure upon a cavity plate than a plain one well fitted, which is doubted by many, it can only be in proportion to the size of the open-

ing to the cavity, for if the cavity had no opening, only a valve from which the air was exhausted, it would still be like a plain plate with the atmosphere pressing equally on all sides of it. If now an opening be made on the upper side the equilibrium will be destroyed, for the pressure of the atmosphere would be removed where the opening was while it would remain on the opposite side. It follows, therefore, if Mr. Riggs' double plate had been a single one with the row of holes through it, and around these holes small caps had been soldered, similar to percussion caps, opening towards the gums, that the pressure, when the air was exhausted from them would be as great as though the chamber extended over the whole surface between the plates. This form of plate has been abandoned on account of the gums being drawn into the apertures, producing strangulation, inflammation, &c., and because it is so difficult to cleanse.

The next improvement made upon "suction plates," as the plain plates were formerly called, was the introduction of the central cavity as invented and patented by Mr. Gilbert, of New Haven, which has already been described in the Recorder.*

Some suppose that when plain plates are used the air is not exhausted from under it except for a short distance around the edges of the plate. Says Dr. Dwinelle "This principle has heretofore been but imperfectly applied, because from the very nature of the construction of the plates, it is impossible to derive any thing more than a limited degree of the advantages of the atmospheric principle, for the reason that when a plate, no matter how well adapted to them, is applied to the gums, and an effort is made to exhaust the air from beneath, the gums along the line and behind the edge of the plate, are drawn down so as to meet it, forming powerful and impassable valves, to the utter resistance of any effort from without to withdraw the air from the central part of the plate; so that in nine cases out of ten, the atmospheric principle does not act upon a breadth of surface of more than three or four lines around the edge of the plate, and this at a point where the suction is easily and constantly broken, while the whole *central* portion of the plate, which is comparatively protected, and would be least liable to disturbance, is left in a comparatively nominal state."† Now it seems to us that there is a fallacy in this reasoning. Considering the extreme elasticity of the atmosphere it is hardly possible but that it would be

* There are several claimants to this improvement. Dr. Dwinelle claims that he invented it in 1845, and Mr. Gilbert some time previous, but we have the specification and drawings of Mr. A. Johnson, of this city, prepared with the view of obtaining a patent in March, 1843, and containing the identical central cavity invented by Dwinelle and Gilbert some years afterwards,—see Dental Recorder, vol. 2, page 77. It is no uncommon thing, in the progress of any art, for similar inventions to be made simultaneously by different individuals, and often in places, or countries, remote from each other.

† See American Journal, Vol. 10, Page 110.

equally rarified under every part of the plate, especially when the edges press a little harder on the gums than any part of the plate which they always should do in a plain plate. There is another reason, we think, why the air would be exhausted equally from all parts of the plate, it is because the same effort which draws the air from above the plate removes it also from below it, so that there is no more air below the plate to produce upward pressure (which is the same as drawing down the gums to it,) than there is above to cause downward pressure. When, however, the effort at suction ceases, the air is again admitted, and the plate being then in contact with the gums and roof of the mouth the air comes first against the lower side and then causes the upward pressure of the plate. If the air were not exhausted from the central portions of the plate then a cavity plate would certainly be no better than a plain one, as the air would still fill the cavity.

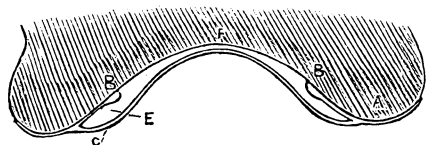
To prevent this Dr. Dwinelle constructs a valve on the lower side of the cavity which allows the air to pass out during the effort of suction and closes when that effort ceases. We have not found this necessary, for whenever we have used a trial plate made of thick tin, as recommended by Mr. Gilbert, by piercing the chamber with a pin after the air had been exhausted, we could distinctly hear the air rushing in to restore the equilibrium and immediately the plate became loose and fell of its own gravity. This could not be the case if the air was exhausted only from a short distance around the edges of the plate as supposed by Dr. Dwinelle.

Dr. J. F. B. Flagg has also recommended that the cavities be placed upon the alveolar process in the place of the molar teeth instead of placing it in the centre of the mouth. (See Dental Recorder, vol. 4, page 64). If the objection to cavity plates, that the membrane is apt to be drawn down into the cavity, be a valid one, then this difficulty will be increased by placing it over the loose spongy substance of the gums, which will be much more liable to be drawn down than the thin, firm, membrane covering the hard palate, and this has been our experience so far as we have been able to judge in cases where the lateral cavities have been used.

The last improvement we have heard of is that of Dr. John A. Cleveland, of Charleston, S. C., patented in June, 1850. The following is Dr. Cleveland's specification accompanied by one of the drawings illustrating his plan.

" Heretofore there has been a difficulty in the atmospheric plates for artificial teeth on account of a want of surface bearing, and in most of them there are small apertures over which the gum fits and on which the stability of the teeth depends ; in plates of this kind

the portion of the membrane over the small apertures is apt to strangulate and slough off rendering them very disagreeable to the wearer and the whole apparatus is unsteady.



To obviate these difficulties and some others I form a plate covering the whole palatine arch and alveolar ridge as shown at (a) in the Figure. The greater portion of the base covering the palatine arch consists of two plates, the upper one of which, next the arch, having a large sized opening (b b) in it, formed according to the requirements of the case; around the edge of which on the lower side a half round wire is soldered, the object of which is to prevent the thin edge of the plate from irritating the mucous membrane. The lower plate (c) is somewhat larger than the opening (b) and leaves a space between the two plates, all around the hole forming an air chamber (e) see Fig. This lower plate (c) is raised up in the centre at (f) so as to come nearly to a level with the top plate, at the centre of the opening through it. The edge of the top plate around the orifice is thickened by adding a wire which is soldered to the lower edge, so as not to have any sharp edges to lacerate the membrane of the mouth at that point. When this plate is fitted to the mouth it rests perfectly steady and does not irritate the parts in contact with it, a large surface being included, and a perfect annular air chamber formed.

The device that most nearly approximates to mine is that of Gilbert in which there is a depression in the centre of a plate that like mine covers a portion of the palatine arch, but this when the air is withdrawn does not have an air chamber, the whole of the concavity being filled with the mucous membrane and consequently there is less security in the attachment than in mine, with the large annular air chamber (e) in it.

Having thus fully described my improvements in sustaining plates for the attachment of artificial teeth to the mouth; what I claim therein as new and which I desire to secure by Letters Patent, is the air chamber (e) constructed and arranged substantially as herein above set forth and for the purposes described."

JNO. A. CLEVELAND.

We have not tried this plan, nor can we without permission or purchase from the patentee, but we cannot see why it is not open to all the objections urged by the patentee against Mr. Gilbert's, besides being much more difficult to cleanse. If the gum is drawn down in Gilbert's plate so as to fill the cavity so will it be enough to fill the whole of the opening of the cavity in Cleveland's. When this has happened the tendency would be to draw it still further into the cavity under the upper plate. No, if there is any advantage to be derived from the use of a cavity plate the simpler it is made the better, and in this respect we have seen nothing equal to the one patented by Mr. Gilbert.

These cavity plates answer a very good purpose for temporary sets, to be worn while the gums are being absorbed, after the extraction of the fangs. The absorption takes place upon the alveolar process which soon loosens a plain plate, but in the roof the mouth, where the central cavity is placed, there is no change and the atmospheric pressure upon this part of the plate will sustain it after it has become quite loose around the outside. For permanent sets of artificial teeth, however, we greatly prefer, in most cases, the plain plate as the gum will invariably suffer more or less whenever the pressure is not equal upon it.

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R A N D O M S H O T S .

BY S. M. HOBBS.—NUMBER TWO.

Action on the Dental Pulp.

It is the misfortune of science, or the weakness of man, that no specific has yet been discovered to cure the sensitive and aching tooth, when produced from exposure of its dental pulp. It is very true that hardly a moon paves its silvery path from east to west, but the newspapers are luminous with some new and glorious panacea that is to charm and destroy this serpent of the mouth. But time, trial and observation soon put it to sleep on that long and dusty shelf of abandoned, useless and forgotten recipes. Meantime decay progresses, teeth ache, pulps become exposed, and science and humanity, with imploring voice, ask if there be in truth a remedy.

A tooth with its internal membrane exposed is a bad, *very bad*, affair. This all of us behind the curtain, and under the rose, know full well. It is a difficult subject to treat, because its treatment is always characterized by the most certain uncertainty. We do not know when we begin where we shall come out. "It may turn out a song, it may turn out a sermon;" and quite as probably as not turn out a great deal worse than a bad song or a bad sermon—without, indeed, we hit the two birds and *turn out* the tooth itself, which philosophy, nature, and common sense often teach, and finally compel us to do.

There are as many simples and compounds recommended for alleviating, and deadening, and destroying the sensibility of the dental pulp, as there are old women's notion for curing cholic and the cough. And nearly all of them are about as marvelously potent, contradictory and absurd. The real truth and fact in the case is, we suspect, that there is no philosopher's magic stone in the matter—no real, bona-fide, unexceptionable *specific* for the trouble. A given recipe will act quite, perhaps satisfactorily, well at one time, and in a particular tooth, while at another time, under apparently similar circumstances, it will increase the disease ten-fold. This is true of every preparation yet used. What's to be done? What's the inference? Why, that we either have not got a

good enough substance, or that the practice itself is unscientific, unnatural, reprehensible. Where and what is the truth of the thing? Shall we pursue a practice in which the chances of success are notoriously against us? Shall we allow creosote and arsenic to steal away our brains and strike the forceps from our hands? We leave it for the reader's reflection.

Ether and Chloroform.

Is it essential that the dentist use either or both these agents? Is it prudent? We think it is so. Our own experience is that it may be used with the most decided and emphatic advantage. Yet with care, discrimination, knowledge. In the hands of jackies and experimenters; of men who have nor want either wit, wisdom, common sense or any thing else that makes a real, responsible, genuine, light-seeking *man*; in the hands of such it becomes a more or less inimical agent. And so does every thing else under the bungler's and recklessly ignorant's administration. We think that not only may these anesthetic agents be exhibited with safety and propriety, but that it is the *duty* of the good, keeping-up-with-the-times dentist to have them under constant contribution. But in their use, he is to have his eyes open, and his head alive, and his judgment in action. He is to know his patient. He is to measure his constitution, temperament, tendencies, habits, &c., and to fortify and enlarge this by personal interrogatories. This done, and the practitioner is at once able to take the bottle from the shelf or let it remain there—to apply the charming soother, or imperatively decline to do so. He will find not a few to whom he must most absolutely and positively not administer it. Such are those, as a general rule, who are plethoric, those having advanced affections of the lungs or intermediate organs, those much accustomed to headaches and rush of blood to the head, the debilitated, women in state of pregnancy, those subject to violent passions, &c., &c., all of which it is easy to ascertain.

We use a mixture of equal parts of chloroform and ether. It makes a more agreeable compound than the separate preparations, avoiding the sweet and sickening taste of the one, and the generally offensive odor of the other. The patient also revives with more celerity and with the happiest of sensations. It may be given from a sponge, handkerchief or towel. We prefer the finely-pored sponge, since it possesses a large evaporating surface.

Thus administered with prudence to the *proper* subjects, we think it a most admirable agent for the dentist; and it is only in the hands of the

miserable quack and upstart that other than good effects will result from it.

Blow-Pipes.

This is, decidedly, a *windy* topic, but we trust it is *not* one that will blow no good. The blow-pipe is something that is literally in every dentist's mouth. It is fit, therefore, that we give it a random shot.

Shall a dentist blow away his brains, lungs, and his entire abdominal structure, to blow teeth into his patient's mouth? We think not. We think that *that* is more than can be really required, since without these organic notabilities a man is short of material wherewith to meet the various relations of life, no less than his many professional duties.

In soldering plate-work it is not only a great convenience, but a great necessity to use a *self-acting* blow-pipe. But if this is agreed to, and the necessity is admitted, where is the remedy? Most of the compound pipes in the market are not reliable, while many of them are unsafe. Like saltpetre, they will *explode*; so that while with the mouth-pipe you are in danger of blowing *out* your brains, with the compound pipe the danger is equally great of blowing them still further *in*. The desideratum of course is to produce the third product by combining the safe with the reliable.

It is a matter of extreme surprise that this has not been done to a more perfect extent than the real facts of the case exhibit. While in all other departments appertaining to professional manipulations the most wonderful and gratifying progress has been made; the most cheering triumphs achieved, this one of the blow-pipe remains almost in statu quo. We, for the most part, have to puff, and sputter, and blubber in a track that has been beaten for fifty years or more. And yet had the same amount of mind and skill been brought to this matter that has marked others, we should to-day have had a blow-pipe that would start in an instant, work with the utmost facility at all and every length of time, while the mouth pipe would be an obsolete and ludicrous relic—a haunter of museums and antiquated history rooms.

We are well aware that announcements are daily put forth proclaiming the advent of the pipe millenium which is to save the whole world of eyes, lungs, heart, and abdomen from further pain and destruction. But some little or big defect is sure to lay the thing into oblivion before the run of another moon. The nearest approach to the great desideratum is in a *Hydrogen Blow-pipe* as it is called, an instrument of French origin, but very much modified and improved by an exceedingly skillful mechanic in one of our New England villages. It was originally used, and

also improved, for the soldering of lead into large chambers for the purpose of manufacturing sulphuric acid. While witnessing its operation in the laboratory of the Acid Works at Waltham, Mass., a scientific dentist caught the suggestion that it might be applied to dental purposes. The thought was parent to the deed; and although it did not in all cases meet the hope and requirement of the dentist, yet such was the principle of the instrument that it fully impressed him it might be made a serviceable, and finally, after due modification, a perfectly reliable pipe. It has now far advanced towards that much desired position.

The beauty and merits of the pipe when perfected will be, that it can be operated at any moment, and capable of *working its own lungs* twenty-four consecutive hours, if necessary; which is a period *rather* longer than the dentist is usually required to puff on *small* jobs. As some endorsement of its present merit and promise, we will simply state that it is an occupant of the laboratory of Drs. Harward, Tucker, Godman, and some others of repute in Boston. At some future time we may have more to say upon the subject.

Our position and assertion is, that we are, as a profession, sadly in want of a blow-pipe possessing an *internal vitality*; or, in other words, one that will *blow itself*—like a great many newly-fledged and half-loaded, and less brained dentists in certain parts of the land—only, in heaven's name, gentlemen, don't invent any thing that will blow so hard and so loud as some of this boreas and leechful tribe are wont to do,

From the American Journal.

TORTOISE SHELL APPLIED TO DENTISTRY.

BY DR. JAMES ROBINSON.

A large number of the dental profession attended by invitation at the Western Literary Institution, Leicester Square, London, on Tuesday, the 5th February, 1850, to hear a lecture by Mr. G. F. Harrington, Dentist of Portsmouth, on the application of tortoise-shell for the beds of artificial teeth, the following is the substance of the lecturer's observations.

The lecturer and patentee of this new application introduced the subject by observing that as the gentlemen composing the audience were well acquainted with the theory and practice of the dental art, he would not occupy their time with any preliminary remarks, but at once proceed to describe the nature and peculiar advantages of tortoise-shell over that of sea-horse or sea-cow ivory, as the basis for artificial teeth

both as regards cleanliness, strength and durability, it was moreover only half the weight of the former materials, and when seen in connection with the mineral teeth its advantages would be obvious.

As regarded cleanliness, it stood unrivalled, with the exception of gold, as it possessed neither taste or smell, or was there any perceptible change from the action of the saliva of the mouth, neither was there any chemical change produced when submitted to the action of various acids with which he had experimented. It, moreover was a non-conductor of heat and cold, and hence excellently adapted for tender gums.

The working of the material was exceedingly easy, as it could be readily filed, scraped, drilled and rivetted without the least danger of accident; it was non-absorbent and capable of receiving and retaining a high polish, and from the results of Mr. H.'s experiments for five years, he assured the meeting it would be found more durable than either of the ivories usually employed and probably equal to gold in that respect.

The lecturer then described a very ingenious piece of mechanism for fixing the shell into the requisite form.

(The Journal here contains a cut representing the apparatus, but the description and the lettering on the cut are so imperfect that the practical working of the machine can hardly be understood from perusing it. The whole apparatus is much more complicated, it seems to us, than is necessary to accomplish the purpose designed. A simple press, so constructed as to force the model casting into a piece of cork, or some other yielding substance, is all that is needed.—*Ed. Recorder.*)

Mr. H. here exhibited the practical working of the machine by taking a piece of shell about a quarter of an inch in thickness and of the requisite size and shape for a full upper set, having placed it in the centre of the machine the whole was immersed in boiling water for twenty minutes, and by means of the tightening screws the softened shell was forced into shape on the metallic cast, after remaining ten minutes to cool, the shell was removed from the press and presented a plate ready for mounting with the artificial substitutes, which at present we understand are only manufactured in one piece with artificial gums, comprising a series (seven or eight) varying in sizes, shapes and colors.

At present the application is limited to full sets in either jaw; whither its extension to other cases remains to be seen. The method of taking the impression is very ingenious and interesting. It consists of a series of hollow model sets manufactured in metal and numbered, which externally represent teeth of the various width and depth usually required; this tray is filled with wax and pressed upon the gum to the proper

depth in the usual manner. The patient is now desired to close the mouth which gives the requisite length, &c. By this means the lecturer stated the model, bite and adaptation in complete sets could be finished at one interview with the patient.

The operator has now to submit his model to a graduated guage invented for the purpose of taking the depth and width of his artificial substitutes, and as before observed a number of sizes and shapes are kept ready manufactured by Messrs. T. Ash & Co., corresponding to the number of his tray, by means of which he took the impression in the first instance, after selecting the one adapted to the case, it is mounted upon the tortoise-shell palate plates by means of revits, the porcelain gum attached to the teeth in most instances extending sufficiently high up to prevent the color of the shell being observable externally. The operator has now merely to attach his swivel and springs and the set is ready for insertion in his patient's mouth.

Throughout the delivery of the lecturer, Mr. H. was listened to with great attention, and at its conclusion, offered to explain any part of his process to any person interested, which we understand many availed themselves of.

NERVOUS AFFECTIONS OF THE FACE FREQUENTLY MISTAKEN FOR NEURALGIA OR TIC DOLOUREUX.

(The following article is taken from "The Surgical, Mechanical and Medical Treatment of the Teeth by James Robinson," of London, a work containing much practical information for the dental operator and which should be in the library of every dentist.—*Ed. Recorder.*)

A reference to the frontispiece of the present work will show the intimate connexion that subsists between the nerves of the teeth and those of head, neck, brain, &c. Now when we consider this connexion, it will be scarcely surprising that nervous affections of the face are frequently mistaken as to their character, and treated as if they were constitutional and not local complaints. The fact is that comparatively few cases of true constitutional neuralgia are to be met with, though thousands are treated as such, which, if the teeth were closely examined, would be found to depend on deep-seated stumps, that possibly may have lain hid under the gums for years, and there have escaped the observation of both the patient and his medical attendant. Moreover, carious teeth will often cause an attack of neuralgia, perhaps in the face or neck, or at some considerable distance from the source, viz., the affected tooth, which at the time may itself be free from pain. Derange-

ment of the digestive organs may, and doubtless frequently does, give rise to neuralgic affections; yet in ninety-nine cases out of a hundred such affections are grounded on the irritation of a diseased tooth, excited either by exposure of the nerve, or else of the upper part of the teeth in consequence of recession of the gums, or by a diseased fang: and they are at first purely local in their character. After a time, it is true, general and constitutional symptoms set in, but even then the removal of the diseased tooth, or proper treatment of the fang, will frequently both put an end to the paroxysm, and prevent its return.

Medical authors assert, that genuine neuralgia may be known by the periodicity of its attacks; but this, like many other imperfect generalizations, has led the mind away from profitable observation; and caused the profession to disregard those diseased organs which are frequently the exciting and palpable sources of the nervous affections now under consideration. In consequence, the medical practitioner too often neglects an appeal to the teeth in cases where a proper examination, instituted before the disease has assumed a formidable character, might at once point to the relief of the patient by suggesting a removal of the cause of the suffering.

To show the necessity there is, in cases of facial pain, for the examination of the teeth by a dentist, before any mode of treatment is decided upon, we here subjoin two cases that came under our care in private practice, and which, we hope, will convince the reader, from a practical ground, of the mutuality that exists between different parts of the nervous system.

Case 1. We were consulted by a lady, about twenty-two years of age who for eight months had suffered pain in the branches of the maxillary nerves, superior and inferior, which pain at first came on in *irregular* paroxysms, but had latterly been distinctly periodical, invariably commencing at 9 o'clock, a. m., and at 7, p. m. The severe character of the attacks generally lasted for about an hour. They seldom occurred at any other times than those above specified, unless the patient was suffering from indisposition or mental disquietude. Early during her sufferings she was persuaded to apply brandy and salt, with mustard poultices, &c., but these had no good effect. She then consulted an eminent physician, who ordered various preparations of iron combined with quinine, which medicines were continued for two months without the slightest relief. Belladonna was next tried, commencing with a grain night and morning, an hour before the paroxysms came on. Leeches and blisters were applied to the temples, with fomentations of

poppies and chamomiles, and the dose of belladonna was increased by half a grain each time until three grains were taken twice a day. She now became so much affected by sickness, vertigo, dimness of sight, &c., that this treatment was discontinued, and ioduret of potass substituted, with the external use of veratrine.

These measures were pursued unsuccessfully for six weeks, when it was suggested by a medical friend that the disease possibly originated in a diseased tooth; and under this suggestion we were consulted on the case.

On examination it was found, that all the teeth of the lower jaw, from canines to the dentes sapientiæ, were carious; and that the first and second molars of the upper jaw were the same. It was very evident that this mass of caries was producing great irritation in the surrounding structures.

When the diseased teeth were sounded with a steel instrument, the paroxysm of pain recurred with its usual violence. We immediately removed the two bicuspid and two molars of the lower jaw, and ordered the following:

Acetate of Morphia, a quarter of a grain;

Camphor Mixture, an ounce and a half.

To be taken as a draught: Also this aperient:

Compound Extract of Colocynth, 6 grains.

Calomel, 2 grains.

make into two pills; to be taken at bed-time.

These measures produced considerable relief, and in the course of a week the patient was so far recovered from the effects of the operation as to have the other diseased teeth removed, viz., the dentes sapientiæ of the lower jaw, and the first and second molars of the upper jaw.

The morphia draughts were continued for a few days, and ever since the patient has had no return of pain. A few months since we had the satisfaction of hearing that she was quite recovered, and had not experienced a moment's uneasiness in the jaw since the last operation.

The following case was sent to the Author by Mr. A. Kay, and presents a somewhat different character, although it is worth remark that it too had been mistakea for neuralgia. The effects of our local treatment are conveniently presented in the letter we received from the husband of the patient.

“SIR.—My wife promised to let you know the result of the operation you performed on her, of extracting ten diseased teeth, and of opening the abscess formed underneath; and certainly a most formidable opera-

tion it was for a person in her delicate state of health. Soon after her arrival here, she experienced considerable pain and soreness in her mouth, which I attributed to her traveling in the cold. She was somewhat discouraged in consequence. In a few days, however, the violent paroxysms she had hitherto suffered from, gradually abated, and she is at the present moment free from pain. Her general health is much improved, and she now feels satisfied that she took the proper step, as, though she has lost her teeth, she has gained what she values far beyond them, namely, ease, comfort and health. The gums are not quite healed yet, but appear perfectly free from disease, with the exception of that part around the two front teeth, which are much decayed, and which you said she would be obliged to have extracted, if any pain or uneasiness in the face returned. Thanking you for your kindness and attention,

“ I am, Sir, yours, &c.,

“ B. WHITE.

“ *Chapel Street, Halstead, Essex April 7th, 1845.*”

In October the lady was well, and had experienced no return of pain.

For the Dental Recorder.

CASE OF NEURALGIA.

CENTRAL VILLAGE, CONN., Aug 15th, 1850.

MR. EDITOR:—I will report to you a case which has come under my observation, and if you think it of sufficient interest you can publish it.

Mrs. C. consulted me sometime late in the fall, or early in the winter, of 1848. For some ten years she had been subject to severe neuralgic attacks; previous to these attacks she had suffered much from exposed nerves and dead ulcerating teeth, and had applied to a physician where she then lived (Pennsylvania), several times to have the troublesome teeth extracted; but she was always refused, whether from supposed difficulty in the operation or from a mistaken notion, common at that time, and which prevails to a certain extent even now, that an ulcerated tooth should be let alone, she knows not.

She not only suffered much pain in the teeth but throughout the whole of her jaws and face; but as these exposed nerves gradually died and the matter from those ulcerated found access through the alveoli and gums in the form of gum-boils, the disease assumed a chronic form, the pain diminished by degrees until at last it entirely ceased.

She then became subject to neuralgic pains in the hips. The inter-

vals between these attacks were sometimes two or three weeks and sometimes they were as often as two or three in one week, and thus she continued for some six years; applying to various medical men with nothing more than temporary relief from the use of anodynes. The disease then shifted its attacks nearer its cause, commencing in the jaws it would extend up the face, through the temples and down the neck to the right shoulder and elbow. These attacks were excruciating, and left the neck, shoulder and arm so lame for a day or two that it was with difficulty she could attend to her household duties; these usually lasted from half an hour to an hour.

She had been troubled in this way for four years when, as she said, she was led to consult me from a conversation she heard between some others and myself upon the effect of bad teeth on the general health and remote parts of the system. Upon examination I found she had some eight teeth whose crowns were entirely crumbled away, gum-boils existed in several places over the roots and some ten or more teeth were decayed, but which I thought might be preserved. The gums were swollen over the whole mouth, sensitive, and spongy, bleeding upon the slightest touch. The second right superior bicuspid presented a peculiar appearance, and—now comes what puzzled me the most—there was a bright band of red encircling this tooth just above the gum, which the tartar had caused to be absorbed to some extent, the tooth decayed upon its posterior surface but not to the nerve, the bone in the cavity extremely sensitive, and the whole tooth the same when pressed upon in any direction. The gum around it presented symptoms of acute inflammation.

I expressed an opinion that this tooth should be extracted, but she refused, saying she must have it filled, accordingly the roots spoken of were at various times taken away and I commenced filling the carious ones, prescribing, at first, astringent washes for the inflamed gums. The attacks continued as severe as ever after all the dead teeth were away, and making an examination while under the attacks I found the same symptoms attending this tooth, but more marked, and advised its removal, to which she at last consented. It was taken out when she was suffering from one of the most severe attacks she had ever experienced and the instant it was removed she arose from the chair, exclaiming, "Doctor, you have got the right one, that pain is gone."

More than twenty months have now passed and that pain has never returned; her remaining decayed teeth were all filled and the loss of three front ones supplied with artificial teeth; her gums soon became

healthy and her general health better than it had been for many years, and continues so. I often hear of her speaking of me and the profession generally in the highest terms of commendation, a profession which she had before considered as a good deal of a "humbug."

Yours, &c.,

A. FULLER.

From the American Journal ; Corrected for the Recorder by the Author.

OBSERVATIONS ON THE TRANSPLANTATION OF TEETH.

BY E. B. GARDETTE, M. D.

The re-publication in the "American Journal and Library of Dental Science," for January, 1850, of the above paper, written in 1827 by my father, and then published in the "Medical Recorder," of Philadelphia, has naturally claimed my attention with something more than the ordinary interest of a general reader. The "Observations," of course, are not new to me, unless in that sense of novelty in which a forgotten object reappears before the mind in a new form and under changed circumstances ; and with whatever feelings of politeness the contributor and editors may have offered or received the paper for the Journal, it seems to me of doubtful utility or compliment to professional readers of the present time. Such, I feel sure, would have been the opinion of the writer himself, if now living, and I think he would not willingly have consented to the re-publication, without at least subjecting the "Observations" to appropriate revisal.

And yet, even with this feeling, or impression, however strongly entertained, I could not well intrude the offer of such editing, previous to the insertion in the Journal, although kindly notified by the Baltimore Editor of the intention to re-publish the paper. The gentleman who contributed it is an entire stranger to me, but I owe him the courtesy of my thanks for the evident kindness with which he desired to revive and preserve the "Observations," whilst I am induced now to notice them with perchance some degree of filial and familiar freedom, for which the profession will scarcely demand of me an apology.

In reporting the unsuccessful cases of transplanted teeth by Mr. Lemayeur, and the comparatively successful ones by the celebrated John Hunter, that chanced to come under M. Gardette's notice, there seems a want of care on his part, in making the obvious distinctions that bear upon the question he had under consideration, or in arriving at correct conclusions from their peculiarities. These oversights arose, I do not doubt, from the great reluctance, the aim at brevity, and "the diffidence he always felt in writing English for publication ;" and if I am able, in

any degree, to not merely have performed a grateful duty towards the memory of my father and protector, but possibly carry out more fully his own views, as he would have had them understood.

I proceed to notice the omissions, and what seem to me the objectionable portions of the "Observations."

We are told that "*Mr. W. H. of Philadelphia had three upper incisors transplanted in London in 1784-5,*" and that "*five years afterwards,*" Mr. Gardette was first consulted on account of their looseness: and that by relieving these same teeth from the mechanical action of the opposite incisors, and by the use of astringent washes, "*they again became firm in the course of two weeks.*" It would be important and interesting to know how long they *continued firm*, after the relief thus afforded by M. Gardette.

Another patient, we are informed, also had an upper front incisor transplanted by Mr. Hunter in 1780, who still had the tooth 1783, and that this tooth was removed in consequence of a discharge of pus, "*of which the lady did not notice the progress for some years.*"

These two cases (and the *only* two performed under Mr. Hunter's superintendence) were attended with a degree of success which contrasts sadly with the total failure of "*one hundred and seventy cases of transplanted teeth by Mr. Lemayeur,*" and "*more than fifty of which*" were extracted by Mr. Gardette within a brief period afterwards.

The widely different character of the *results* seem calculated to raise a doubt whether Mr. Lemayeur deserved "the reputation of an eminent dentist" ascribed to him; for he appears to have been eminently unsuccessful in the experiment of transplanting teeth, scattering dead bones upon his path through the land *at five guineas* a piece. At all events, I am naturally led to make some distinctions between the skill and judgment exercised in the performance of the operations by the two gentlemen, (Mr. Hunter and Lemayeur,) and also as to the constitutional differences in the individuals upon whom they operated. These striking contrasts would also evidently suggest more extended and pathological conclusions than the mere summary fact that "*the transplanted tooth will not become firm and useful.*" It is to be regretted that Mr. Gardette, while engaged with the subject, did not give to the profession a more detailed account of his views respecting causes as well as consequences, his own *rationale*, derived from knowledge and observation.

An eloquent medical lecturer of Baltimore, in one of his many happy spontaneous efforts of wit and learning, proved satisfactorily to his hearers that there is often too much importance attached to the knowledge

supposed to be derived from experience. Unfortunately, I do not possess the means of quoting the language of the able medical man referred to, but from the recollection of his views I borrow the thought, that in surgery as well as in medicine, we are too apt to believe we know a fact from experience, when, in truth, we have only been misled into conclusions more or less correct, by a few experiments. Now the experience of Mr. Gardette, in regard to the transplantation of teeth, would have been rendered especially valuable by the correct reflections and deductions he was abundantly able to make upon what he had seen; for his knowledge, I may safely assert, was much greater than his experience, upon this particular subject. From the latter we only learn that over fifty teeth out of one hundred and seventy, transplanted by Mr. Lemayeur, were failures, and extracted by him within a very short period after the operations of transplanting; but what became of the remaining one hundred and twenty teeth transplanted by the same gentleman, his experience tells us nothing about.

The two cases from London that came under the observation of Mr. Gardette, seem to have had almost an encouraging degree of success, as respects the number of years they remained in the mouth; but with what amount of comfort, purity, health or usefulness, the observations do not inform us.

The opinion that the operation is impracticable, or, in the language of the "Observations," that "*there are a thousand chances to one against the success of transplanting teeth from one mouth into another,*" however just or a good guide with reference to the inducements to attempt it, cannot be regarded as satisfactorily explained or sustained by the cases reported in Mr. Gardette's paper. Nor is the theory a sound one upon which the whole objections to the operation are founded, viz: "that the root of the tooth which is to replace the defective one should be of the same *length, size and shape* of the root of the one which is to be replaced, and that the dentist is obliged to judge of this without seeing either," for this permits the conclusion that if, by a very possible chance, the roots of two teeth should so precisely resemble each other "*length, size and shape,*" that then the operation of transplanting teeth from one mouth into another, would be entirely successful. Or, in other words, that the mechanical fit or adjustment of the fang of the new tooth, to the form of the socket from which a tooth had just been removed, is the sole principle upon which the success or failure of the transplantation of teeth depends. Such surgical operations are not to be estimated or determined upon by a calculation of chances, and this was by no means, I am

quite confident, the precise meaning Mr. Gardette intended to convey, and certainly not all he might have written as to the principles involved. He was well aware, of course, that the unavoidable destruction of the periostia of the fang and alveolus, and the necessary rupture of the dental membranes at the apex of the fang, resulting from the extraction of a tooth, are most important considerations in estimating the propriety or success of transplanting teeth from one mouth to another. Upon the health of these depend the life, the living principle of the tooth, and surrounding parts, and, as we all know, it is their disturbance and the consequent diseased action that renders the operation impracticable.

A dead tooth introduced into the living jaw, must continue to act upon the adjacent parts as an irritating foreign body, and the degree of mischief it occasions will be governed by the greater or less amount of natural excitability of temperament, or the accidental condition of the circulation at the time. It is well ascertained that there are constitutional peculiarities or idiosyncrasies, differing so materially and strangely from one another in different individuals, as to render what would prove to be a fatal freedom with the frame in one case, harmless and even comfortable in another. The natural or physiological laws upon which the health and usefulness of the human teeth depend, may not be violated to the extent of transplanting a dead tooth in a living jaw, without the penalties of inflammation, suppuration, morbid or active disease in some form : the light or serious character of these will, in each case, be determined by the favorable circumstances, or otherwise, in regard to constitution, and the extent of local disturbance inflicted.

It is something less formidable, to be sure, to plant another tooth in the head, and expect it to grow, than it would be to place a "new head upon old shoulders," after removing the defective incumbrance that might call for exchange ; but mostly it would be wiser for the patient who is about to submit to a change of teeth by transplantation, to make a change of heads in his dentist. I do not mean by the same operation, for even the nice surgery of Saladin's sabre, that took off the head of the Grand Master of the Templars so quickly that the trunk remained standing, could not transplant another in its place.

As to the operation of restoring a tooth to its original socket, after partial or entire extraction, it can scarcely be termed transplantation of a tooth ; and although such a tooth also loses its vitality, the exactness with which it fills its own alveolar cavity, and the slow progress of ensuing symptoms, are the chief senses in which it differs in condition from a tooth transplanted into another mouth. The sundering and absorption

of the nerve and periostia ; the loss of all connection with the general circulation ; all the objectionable features, though less aggravated, of a transplanted tooth, are likely to supervene, if a tooth is replaced after having been extracted. Hence, inducements can rarely exist for making such an experiment as the restoration of a tooth, once entirely removed from its alveolus ; for the extension of inflammation and diseased action upon neighboring teeth and gums, involves premature loss or injury. Such doubtful operations, to say the least, seem a heavy penalty for the abortive effort to improve looks for a brief space, at the risk of serious derangement of health, and the loss of that comfort to be derived from even a diminished number of sound and unmolested teeth.

Docter Eleazar Parmly has said that "a tooth is worth bearing just so much pain," and I think that a restored or a transplanted one is not worth the endurance of any pain at all : and by this rule, it were not difficult, perhaps, to classify the value of teeth in the mouths of different individuals. To the young, for instance, a troublesome, unseen molar, is not worth a moment's inconvenience : while a front, or side tooth, that "shows," is worth years of martyrdom. And thus it has been that transplanted front teeth have been endured in the mouth with all the evils attendant upon their presence, especially at a period of time when artificial teeth were not very successfully supplied. The experiment of transplanting teeth from one mouth to another, at the risk of health and even life, seems somewhat characteristic of the age and country in which it originated, where under the *ancien regime*, a lady would stand in starch and buckram, bedaubed with paint, powder and pomatum for a whole day, in order to figure at a ball in full costume at night.

Mr. Gardette's observations bear strong testimony in favor of the disputed theory that the most revolting diseases may be introduced from one system to another by the transplantation of teeth ; and the most eminent medical men have frequently been deceived by remote symptoms that eventually have been traced to dead or diseased teeth, long after having had recourse in vain to general remedies for that most indefinite of maladies—neuralgia. The stomach, and other guiltless organs, are often thus punished for the sins of some vile hidden fang, or diseased tooth, whose slow, deep-seated action, nevertheless, produces the distant but acute paroxysm. The diseases, especially, of the antrum maxillare, have not been sufficiently observed by the general medical practitioner, in their connection with diseased teeth, and I use this occasion to express my great pleasure at the expectation of a highly valuable work on this subject, with numerous illustrations, by Dr. Edward Maynard, of

Washington City. This gentleman deserves great credit for his extensive cabinet, collected in Europe, and through which he will be able to develop many original and interesting facts to the profession.

Before closing this desultory notice of the "Observations on the Transplantation of Teeth," I earnestly disclaim all affinity or sympathy with that "march of mind" in modern times, which goes to prove conclusively that sons know much more than their sires; but if, in the performance of my voluntary duty, I have been able to give any value to this paper, or through it to add in the least to the force of that from the pen of my father, I trust it may be regarded as only an attempt to restore to his memory a small part of the advantages I have derived from his teachings and character.

FATAL EFFECTS FROM THE CARELESSNESS OF AN APOTHECARY.

As mentioned briefly in last week's Journal, an accident of a very serious nature recently occurred in this city. An apothecary, Mr. Wakefield, mistaking the article in the physician's prescription, put up for chloride hydrargyri, the bi-chloride, and thereby, as is reported, caused the death of Mr. James Hall, who took it. We cannot conceive how such an error could have occurred with any kind of carefulness on the part of the apothecary. Bottles may be misplaced, yet that would not afford an excuse; or even the bi-chloride may have been in the wrong bottle, which is still more reprehensible. The fact is, many of our apothecaries are not sufficiently educated, and not careful enough in compounding and dispensing medicines. Too much limit is allowed the apprentice in dealing with articles of such potency. It has often been advocated in the pages of this Journal, that the sale of such potent chemicals should be regulated by law; and further, that the apothecary should receive a medical education, and be duly qualified before entering upon his very responsible office. As the law now exists, any one can set himself up as an apothecary, even if he cannot tell buchu from senna leaves. In a future number we shall have something further to say on this subject.

In the case referred to, upon the verdict rendered by the jury of inquest, who investigated the circumstances attending the death of Mr. Hall, Mr. Coroner Smith entered a complaint in the Police Court against Mr. Wakefield, the apothecary, charging him with manslaughter. Mr. Wakefield was arrested, and brought before Justice Merrill, when, waiving an examination, he was required to furnish bail in \$5000 for his appearance at the ensuing term of the Municipal Court for trial on the charge made against him.—*Boston Medical and Surgical Journal*.

SEPTEMBER, 1850.

HAWES' MOULDING FLASK.

At the last annual meeting of the Society of Dental Surgeons of the State of New York, Mr. George E. Hawes, of this city, exhibited, in connexion with his experiments, on metallic casts, a new flask for moulding models, which, owing to the depression of the jaw above the most prominent portion of the gums, cannot be removed perpendicularly from the simple flask, in common use, without dragging more or less sand with it. This "drag" prevents the dentist from procuring a perfect casting, which is ensured in all cases by the use of Mr. Hawes' new flask.

The following cuts will illustrate the operation of this flask with very little description :

Fig. 1.

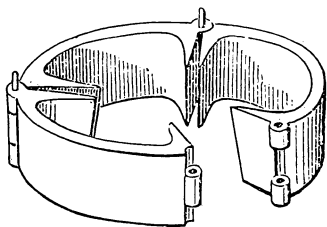


Fig. 2.

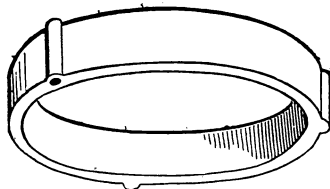
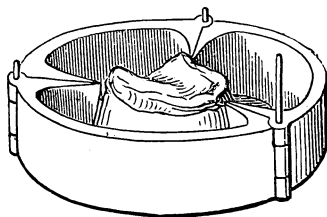


Figure 1 represents the lower section of the flask slightly opened, to show the joints. Figure 2 is the upper section. When ready for use the lower section is closed and confined by a pin and the plaster model placed in it as represented in

Fig. 3.



If the model be considerably smaller than the space between the flanges, projecting in towards it, small slips of paper may be placed in the joints extending to the sides of the model, to part the sand when

opening the flask for the removal of the pattern. The sand may now be tamped around the pattern up to the most prominent part of the gum, and it should be finished smoothly around it, slightly descending towards the model so as to form a thick edge of sand for the more perfect parting of the flask. The sand and face of the model must now be covered with dry pulverized charcoal, sifted evenly over the whole surface. The moulders keep it in a bag which they shake over the flask.

When this is done the upper section of the flask is placed upon the lower and carefully filled with sand. It is then raised from the lower one which may then be parted, by removing the long pin, and the model gently taken away. When closed and the two put together again and inverted, it is ready to receive the melted metal.

We have used this flask, for which we are indebted to Mr. Hawes, for some months ; and have been able to make, by its use, more perfect castings than ever before, in the kind of cases for which it was designed.

We understand that Mr. Chevalier will soon have an assortment of them for sale.

IMPROVEMENT IN THE METHOD OF MOUNTING ARTIFICIAL TEETH.

For several years past a few dentists among our acquaintance have been in the practice of soldering their artificial teeth, for entire lower sets, to the gold plates with pure tin, using the tinman's soldering iron instead of the blow-pipe. The manner of proceeding is as follows.

First strike up, in the usual manner, a very thin gold plate (No. 30 or 31, will answer) to fit the jaw. When this is done, place the wax upon it and cut it to the right curve and the proper height for the length of the teeth. The teeth are then to be selected and put round upon the wax in the proper position for use ; but it does not matter whether, or not, they come down to the plate, provided all that part of them which is exposed to view, when in the mouth, is right, as all below will be filled with tin when the process is completed. Plaster and sand is now to be put on the outside of the teeth and plate, in the same manner as though they were to be soldered in the usual way. When this is done the wax may be cut away, the teeth removed from the plaster and a thin gold back put upon them. In backing them it will be necessary to bend the platina wires together, over the gold, with a common pair of pliers. The backs may now be soldered to the plate forming one solid mass of tin as high as the wires and imitating as nearly as possible the

form of alveolus which has been absorbed. When this is done the plaster may be taken away and as much tin put upon the front as will restore what has been lost by absorption of gum and alveolar process.

When the piece is properly trimmed and burnished it makes a very strong and natural set of teeth, while the additional weight given to it by the tin keeps it in place better than those made in the ordinary way. Some use silver²plate instead of gold and gild the whole by the galvanic process, and we can see no reason why this metal should not answer just as well as gold. We have put in several temporary sets in the above manner, on gold and all have done remarkably well, giving entire satisfaction. This plan of mounting teeth was first practiced, we believe, by Mr. Royce, about eight years since and has been used by him in very many cases, as he alleges, with perfect success.

Mr. George E. Hawes has lately made an improvement upon the above plan by means of which he dispenses with all metallic castings and plates of every kind, using only the pure tin and the teeth. His plan is, after the first cast is procured, which should be made of plaster with a large proportion of sand, to fit to it a piece of tin foil, or plate, as thick as can well be rubbed down to it with a burnisher, and as large as a gold plate would have to be. The wax is then put upon this tin plate and trimmed to the proper curve and height as in ordinary practice. Next, the teeth are to be placed upon the wax and when properly arranged a strip of wax is put round the bottom of the front side of the teeth and plate. This wax, and that on the backs of the teeth, is then to be carved to represent the natural gums or so as to form a smooth ridge as high as is desirable. Care must be taken to select such teeth as have their platina pins low, so that they may remain embedded in the wax.

When this process is completed, the whole is to be placed upon the plaster and sand cast and more plaster and sand poured over it so as to cover with a thick mass the whole of the wax and the teeth. After the plaster has thoroughly hardened the casts may be parted, and the tin plate and all the wax taken away, and the platina wires, and those parts of the teeth exposed washed with muriate of tin.—A hole to pour the melted tin into must now be made at one end of the set and another on the other side for the air to escape from. When completed thus far it is ready for the pouring and to insure perfect success the castings should be securely bound together and the whole mass heated to the temperature of melted tin.

Sets of teeth made in this way and having the casting thoroughly gilded are much handsomer and more natural in their form than those which

have the long teeth and gold backs, they are also stronger, as they are protected both front and back, can be made for one half the expense of the ordinary sets on heavy gold plates, and, judging from the little experience which we have had in making and testing them, as well as the testimony of Mr. Hawes, are equal in every respect, if not superior to those mounted upon gold backs.

DENTAL ADDRESSES.

We have been uncommonly favored within the past few months with Addresses delivered before Dental Societies, Colleges, Alumni, &c. Two or three have already been noticed, and as many more are now lying on our table, neglected for want of room.

The Valedictory Address delivered before the Graduating Class of the *Baltimore College of Dental Surgeons* by *S. P. Hulihen*, is an admirable production, full of noble and generous aspirations for the honor, dignity and unity of those who aspire to be members of the *dental profession*, and replete with wholesome advice to the young who are now entering upon its privileges and duties. It is also justly severe upon such as have heretofore "looked upon it as a *trade*, and its practitioners as mere mechanics." Dr. Hulihen is one who deserves to rank among the *profession* although he has given abundant evidence of fully understanding and practicing all the details of the *trade* except its low trickery and open-handed knavery.

We have also received the *Eleventh Annual Announcement* of the Baltimore College of Dental Surgeons, containing a synopsis of the plan of instruction heretofore pursued in that institution and which has proved so effective in producing able and efficient mechanical and surgeon dentists. A thorough course of instruction is given in the mechanical, the operative, the theoretical and all the collateral branches of the science, embracing the Principles and Practice of Dental Surgery by C. A. Harris; Special Pathology and Therapeutics by Thomas Bond; Anatomy and Physiology by W. R. Handy; Operative and Mechanical Dentistry by C. O. Cone, and Dental Chemistry by P. H. Austin.

This embraces a course of instruction which students cannot receive in a private office without devoting much more time to it than is requisite within the classic walls of the Baltimore College and under the immediate instruction of this able corps of teachers.

We have also before us the Address of James Robinson, of England, upon the subject of the condition of the profession in that country, but which our limits prevent us from noticing at this time.

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